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Examinations Old and New: Their Uses and Abuses

I. A BACKWARD GLANCE

AS FAR back as we have any record of school routines, teachers have always examined or tested, as well as taught. But our attitudes towards these two functions have been, historically, quite different. We have long understood that teaching is a highly skilled business, a profession, calling for special aptitudes and extensive preparation, and that both its techniques and its objectives are worthy of the most careful investigation. But examining or testing we have taken for granted as something that anybody could do any time, quite casually, for any purpose he might happen to think of. It is only yesterday that it occurred to most of us that there might be skilled techniques of testing or that the uses we were accustomed to make of our tests and examinations might be open to question.

Every teacher or administrator of more than twenty years' service will recall with me that Age of Innocence when a "test" regularly consisted of ten questions, sometimes concocted impromptu as we wrote them on the blackboard, each weighted, by our arbitrary personal fiat, with a value of 10 on a scale of 100, and when the perfectly simple purpose of any "test" was to "pass" or "flunk" the testees. We knew no qualms in those days about reliabilities or validities or comparability, and the sigma lay as far in the future (for us teachers) as television.

It was only after the World War that this primal innocence was disturbed by the coming—into the consciousness of teachers generally, as distinguished from the psychologists—of what many of us still think of as "the new tests." A bewildering series of strange inventions: intelligence tests first, and then objective achievement tests, and aptitude tests, and interest tests, and personality inventories and ratings. Nearly

all of them appallingly elaborate; and alleged to have been most laboriously prepared, with every item studied and checked, and to have been tried out on hundreds or thousands of students, and then re-studied and re-checked by mysterious statistical methods. Moreover, none of them came equipped with any Passing Grade—an omission which was at first both incomprehensible and shocking. Instead they yielded at best Percentile Ranks, which seemed very inconclusive and unsatisfactory.

But worst of all was the doctrine taught about the *use* of the new tests. It was dinned in upon us that each one of them professed to measure only some one special thing, and that it was by no means certain that it really measured even that, and that in any case it was not reliable for individuals but only for sizable groups, unless something called the Reliability Coefficient was at least as high as .90, which it almost never was.

All this laboriousness and caution inevitably disturbed our blithe serenity with respect to the old kind of examinations. We could not but realize that our procedures with them were somewhat cavalier. We were driven to ask what it was they measured, and with what reliability, and were not able to answer either of those questions. We even began to lose our ancient faith in the Passing Grade. We recalled various well-known facts which we had previously regarded as negligible or humorous: that the distribution of grades in different departments, or even for different teachers in any one department, in any school or college, varies greatly; that students seeking scholastic honors, or merely promotion, believe they can achieve their ends better by choosing "easy" teachers than by burning the midnight tungsten; that cases have been reported where the same examination paper, independently marked by two different instructors, has been given an honor grade by one instructor and a failing grade by the other. In the light of the new tests and test procedures, and the high seriousness and scientific precision of the new testers, such facts began to seem less amusing—began indeed to appear quite appalling when we reflected that promotion all through the schools and

admission to college and graduation from college and election to Phi Beta Kappa and admission to professional schools, nay, even professional licensure, depend upon accumulations or averages of such measures.

But what should we do about it? Throw over our old examinations and adopt the new tests instead? But the new tests have no Passing Grade! They violently disclaim any sure reliabilty for the individual case. How, then, can they serve as the basis for promotion and graduation and honors and the rest? Which is what we give examinations for. Or is it? *Why do we give examinations anyway?* Do we give them rightly or wrongly? And do we use their results rightly or wrongly?

In the foregoing paragraphs I have attempted to sketch rapidly the experience with the old and new kinds of examinations through which the rank and file of teachers and administrators—who are not testing experts—have passed during the last fifteen or twenty years, and to indicate the state of mind in which a great many of us now find ourselves; which is one of uncertainty and questioning, not only as to the comparative merits of the old and the new tests, but as to the right and wrong use or uses of examinations or tests of any kind. Most of us are still giving our old examinations, but now we give them dubiously and dare not trust their results. Also, we are constantly beset with new tests and testing programs, which we sometimes reject and sometimes accept, without very good reasons either way. We have no clear leading as to how to test or when to test or why to test. We need, to replace our old faith, a new philosophy of tests and examinations, dealing especially with the right use of such instruments and their wrong uses or abuses.

It is the purpose of this paper to attempt such a philosophy —to formulate, tentatively at least, some clear doctrine as to the right use of examinations, whether old-type or new-type.

To this end I shall review the various uses which we do actually make of examinations and tests, with such appraisal of these uses as might naturally occur to anyone who gave criti-

cal thought to the matter. Perhaps when we have finished such a survey we shall see more clearly where we are and where we want to go, what we have been doing and what we ought to do.

II. KINDS OF EXAMINATIONS

It may be well to begin by summarizing the *kinds* of examinations we now have to confront. Classifying by what it is sought to measure in each case, we find at least five kinds:

1. ACHIEVEMENT TESTS. These include: (*a*) the old *essay-type examinations;* (*b*) *problem-type examinations,* used from of old in courses in mathematics and some other subjects; (*c*) *oral examinations,* which have long been in vogue in connection with doctoral dissertations and have recently come to play a part in the Comprehensive Examinations now required for honors or for graduation at many colleges; and (*d*) *objective achievement tests* (new-type), of which the tests prepared by the Cooperative Test Service and those used in the Iowa Every-Pupil Contest may serve as examples.

2. GENERAL INTELLIGENCE TESTS, e.g., the Binet-Stanford and Otis tests.

3. APTITUDE TESTS, e.g., the Scholastic Aptitude Test given by the College Entrance Examination Board, the American Council on Education Scholastic Aptitude Test, the Seashore Measures of Musical Talent, etc.

4. INTEREST TESTS, of which the Strong Vocational Interest Test is probably the best known.

5. PERSONALITY INVENTORIES AND RATINGS, of many kinds, as different as the Bernreuter Personality Inventory and the Trait Study recently devised by Dr. Eugene Randolph Smith's committee, working under the Progressive Education Association's Commission on the Relation of School and College.

It will be seen at once that of these five kinds of examinations the last four are new, having made their way into schools and colleges within the last twenty years. For these four kinds it can hardly be said that we have as yet found any general,

commonly accepted, institutionalized use or uses. So far most of us have handled these tests and their results very informally; the scores or rankings have served as clues or cues for personnel officers in conferences with advisees, but have been entered on official records only as *obiter dicta* if at all. This situation is probably due in part to the fact that we have hardly had time as yet to assimilate these new measures into our old routines, but partly also to the nature of these tests and their results, which (happily) do not lend themselves readily to the kind of uses we have been accustomed to make of examinations.[1]

It follows that my proposed survey of the uses of examinations will be concerned almost wholly with the first kind, namely, achievement tests. And under achievement tests we shall really be dealing chiefly with the essay-type, since we may safely guess that 90 per cent of our actual examining still employs that type; with some help from problem-type and oral examinations (which are only auxiliary variants of the essay-type), and with still limited but rapidly growing use of the new-type objective achievement test.

III. ACTUAL USES OF EXAMINATIONS

When one begins to meditate upon the achievement tests, old and new, which are actually given in schools and colleges, one can hardly fail to be astonished by their multiplicity—by the sheer quantity of examining in which we are engaged. The following list makes no attempt to be exhaustive: daily quizzes and weekly quizzes and monthly quizzes, at all levels; semester examinations and year examinations, at all levels; college entrance examinations; comprehensive examinations

[1] The beginnings of a general, institutional use of aptitude test results may be found in the regular figuring of such results into a general predictive index—"Bogie" at Princeton, "General Prediction" at Yale, "College Aptitude Rating" at Minnesota. See A. B. Crawford, "Aptitude Testing in Personnel Procedure," *Bulletin of the American Association of Collegiate Registrars,* July, 1934; and J. B. Johnston, *"Advising College Students," Journal of Higher Education,* June, 1930.

for promotion to the senior college and for graduation or honors; master's and doctoral examinations; and professional licensing examinations (for lawyers, teachers, physicians, dentists, pharmacists, nurses, opticians, veterinarians, midwives, barbers, stationary engineers, etc., etc.). Again we are impelled to ask, Why do we give such countless tests?

Probably many persons will answer immediately that the obvious and legitimate purpose of practically all this achievement testing is the *maintenance of standards;* which seems to mean either one or both of two things: the imposition and enforcement of a prescribed curriculum, or the enforcement of some minimum degree of attainment.

Upon reflection it is likely to be added that a second, closely related purpose is *selection,* involving also rejection—the segregation of the fit from the unfit, the sheep from the goats, for some particular purpose.

And in the literature on the subject we find still other purposes cited as supplementary or in some cases primary. It is said that examinations—

> Provide a powerful *incentive to study;*
> Constitute a *method of instruction;*
> Stimulate or even enforce *improvement of teaching;*
> Afford a basis for the *appraisal of teachers and departments;*
> Provide possible assistance in the *accrediting of schools and colleges;*
> Furnish data for *educational guidance;*
> And accumulate *materials for research!*

This is certainly a notable miscellany of objectives, many of them possessing obviously very great social importance. We are fortunate indeed if all or any of them can be adequately served by series of measurements the great majority of which are of unknown and highly dubious validity and reliability. But let us consider these several purposes or uses one by one with such comments as may seem appropriate.

IV. STANDARDS-ENFORCEMENT

First, the *maintenance of standards,* including, as already noted, the enforcement both of prescribed subject matter and of some more or less definitely envisaged degree of attainment.

If one is to raise any objections here, he must tread softly, because he is approaching what is to many educators in service, especially many of the older ones, the Ark of the Covenant. When those of us who are now in our forties and fifties were learning our trade, "Standards" was the great word, the new gospel, in American education. To set Standards, and enforce Standards, and raise Standards, and raise them evermore, was nearly the whole duty of teachers and principals and presidents. Let me confess that I learned that gospel in my first job, from men who were leaders in their generation, and that for twenty years I never doubted that it contained practically everything needful for educational salvation.

And please note it was a real and salutary gospel in its day. For American education in the nineties was a variegated hodgepodge of uncoordinated practices, which had never undergone any scrutiny from anyone, and many of which were shoddy, futile, and absurd beyond anything we now conceive of; and the Age of Standards—as the period from 1890 to 1915 may come to be called—brought some order out of that chaos, eliminated many dishonest schools and incompetent teachers, and vastly improved equipment, curricula, and methods. This should not be forgotten.

But it is easy to see now that the gospel of standardization was based in part on a tacit, uncriticized, and unwarranted assumption: the assumption, namely, that all men and particularly all children are equal and alike, or nearly equal and nearly alike, not only in their right to Life, Liberty, and the Pursuit of Happiness, as the democratic doctrine declares, but also in kind and degree of intelligence and capacity. In short, we quite overlooked the little matter of Individual Differences—of which, in fact, little or nothing was heard thirty and forty years ago. And we who were making the Standards

were, of course, educators, automatically selected in the main on the basis of considerable scholastic or bookish aptitude. Quite naturally (and quite unconsciously) we created our Standards in our own image. We provided for such equipment and curricula and methods as would have been fine for us when we were in school, and prescribed such degrees of attainment as we should triumphantly and joyfully have met if they had been set for us. And all this was excellent and greatly beneficial for that part of the oncoming generation which was like us. But we entirely missed the fact that the great majority of the children in schools, and even a substantial minority of the undergraduates in colleges, were not at all like us, but were endowed with quite other kinds of capacity and often with lesser degrees of capacity of any kind.

For those others—the majority!—our generalized uniform Standards were all wrong, in that they gave exclusive sanction and exclusive prestige to tasks which were unsuited to their kinds of capacity or impossible for their degrees of capacity or both. As a consequence, the Standards have caused, and are now causing, untold damage and untellable misery to vast numbers of children in the elementary schools and high schools and even in colleges, thwarting and warping and beating down young lives.

We vaguely imagined that in providing and enforcing substantially the same kind of instruction for all children we were serving the democratic principle already cited: Life, Liberty, and the Pursuit of Happiness for everybody. But in fact our uniform and exclusively intellectual Standards have deprived a majority of our pupils of the last two of those rights.

In extreme cases children are provoked—by our Standards indirectly—to unsocial rebellion. Senator Copeland has recently emphasized the hideous fact that the present average age of criminals in this country is 23, with the largest age group at 19 and the next largest at 18, and has very gently but plainly brought home a partial responsibility for this situation to the schools and their Uniform Standards.

"The reports of all school systems that have come to my notice," he writes, "reveal an appallingly large number of academic 'failures' in every grade year after year. Authentic testimony indicates that many if not most pre-delinquents are found in these 'failing' groups. Are these failures inevitable, or are they due largely to the fact that our curriculum is still so rigid that many of our pupils are confronted with academic tasks which are beyond their abilities, irrelevant to their interests and needs, and which foredoom them to what our inflexible academic standards call 'failure'?" [2]

We did not foresee when we made up our beautiful Standards and proceeded to enforce them so firmly that we were about to contribute to a wave of juvenile crime! But even worse, because much more widespread, is the less lurid effect on the vast masses of children who are not driven to crime but only to partial frustration, discouragement, futility, boredom, and various kinds of "escape"—into daydreams or into frivolous and unsatisfying distractions outside of school hours.

In sum: the principle of Standards was a thesis which overlooked an equally valid antithesis, the principle of Individual Differences. In the dialectic of educational history that antithetical principle has now come to the fore, and we are forced to construct a synthesis that shall embody the valid aspects of both principles. And since examining has played a major part in the enforcement of Standards, some wiser use of examinations may be vital to the working out of our new synthesis.

Can we indicate briefly what the new synthesis is likely to

[2] "Education and the Prevention of Crime," address delivered at the meeting of the Department of Superintendence, National Education Association, Cleveland, Ohio, February 28, 1934; published in THE EDUCATIONAL RECORD, April, 1934. This address was based in part on the investigation of crime and racketeering conducted by a Senate committee of which Dr. Copeland is chairman. Out of the same investigation has come the Washington Experiment in Character Education, described by Superintendent Frank W. Ballou at the Third Educational Conference, New York City, November 1, 1934; Dr. Ballou's address has been published in the *Report of the Third Educational Conference*, American Council on Education, 1935.

be, and what kind of examining we shall need in connection with it?

As has already been emphasized, Standards—meaning bookish standards and high bookish standards—are fine for those for whom they are fine: for boys and girls and young men and women possessing a superior degree of scholastic or bookish ability. Our grievous error in this matter of Standards was merely that we conceived of a single standard uniformly applicable to the whole school population.

Plainly, then, what we need is *more* standards: many highly differentiated and carefully graded standards, adapted to as many kinds of capacity and to as many levels of attainment as we can identify in the children actually in our schools. Each of the new differentiated standards would naturally—like our present Standards—carry its appropriate prescription or indication of subject matter or kind and method of instruction and its own norms of excellence. All should be given equal sanction, and to each should be accorded its appropriate prestige. Thus, and thus only, shall we succeed in bringing to all children those benefits—first-rate facilities and feasible goals and successful and happy attainment—which our old Uniform Standards sought to bring to all but have actually brought only to one limited group, namely, those who are in some degree bookishly superior.

For the stimulation of achievement and the demonstration of success within each of our new differentiated standards, we shall undoubtedly use appropriately differentiated achievement examinations, both old-type and new-type—though for this delicate business our tests will certainly have to be more carefully constructed for greater reliability than most of our essay-type examinations have had in the past.

But it becomes clear upon very brief reflection that the major rôle of examining in any such set-up will be a new one: not that of determining, at the end of an educational process, whether a common goal has been attained, but rather of discovering, at the beginning of the process and at various points throughout, what different goals should be aimed at.

In short, under a differentiated educational system, adapted to all classifiable kinds and degrees of individual differences, the old major rôle of examinations—the maintenance of standards—will remain, but will become minor. The emergent major rôle of examining is clearly *guidance;* in which process we shall employ both achievement tests and all those other, new kinds of tests (of general intelligence, special aptitude, interest, and personality) for which, as noted above, we have been unable so far to find any very clear use in schools. We can see now that the reason we have been unable to make much use of these other tests is that even when we have their results and recognize those results as valid in the individual case we can seldom, under our present rigid system, do anything about them, so far at least as school programs are concerned.

V. JUSTIFIABLE AND NON-JUSTIFIABLE STANDARDS-ENFORCEMENT

But where does this analysis of the standardizing use of achievement examinations lead us with respect to the appropriateness and rightness of those parts of our present vast examining process in which the maintenance of standards is clearly the major purpose?

It leads us, I think, to justification of some of these items, with some qualifications, and to equally plain condemnation of others.

The clearest case for justification is probably the professional licensing examination, for lawyers, teachers, physicians, and all the way down to midwives and barbers. In such examining we are not concerned primarily with education and the welfare of the individual, but with the protection of society against incompetence and malpractice. Accordingly, such examinations may properly prescribe appropriate subject matter and skills and enforce high standards of attainment; and the standards may well be raised ever higher, as fast as the development of the professions requires and the resources of society permit.

But even here there are two qualifications to be noted:

First, that a high rate of failure in bar, medical, or other professional examinations, such as often prevails, is not a cause for satisfaction but a symptom of gross maladjustment in the system as a whole. This is not to suggest that the candidates who fail should be accepted; it is more likely that an appreciable number who "pass" should be rejected. But it is to suggest that the incompetence of nearly all the failures should have been discovered long before they reached the professional examination and the candidates steered into other fields—not encouraged or permitted to waste their time and money in prolonged preparation for such final defeat. The unsuccessful candidate in a bar examination, for example, has commonly had nineteen years of general and special schooling. What blank ignorance of our students or bland unconcern with their purposes and welfare is revealed by the fact that through nearly two decades nobody noticed that he lacked the capabilities to make a lawyer, or, having noted this circumstance, concerned himself with it! Such an example may serve to drive home the need for the new emergent function of examining, namely, guidance.

Secondly, I am told by experts in testing that no single examination or brief series of examinations which they have ever devised or expect ever to succeed in devising attains anything like full reliability for individual cases. If this be so, it would appear that the weight put upon many professional examinations is more than they ought to bear, scientifically or equitably. It does not follow that such examinations ought not to be given, but it does seem to follow that their results should be used, to a larger extent than at present, in connection with other accumulated evidence of the candidates' qualifications and competence. We shall have occasion to return to this point.

What has been said above in justification of the selective, standards-maintaining function of professional licensing examinations may be predicated also, *with the same qualifications*, of examinations for admission, promotion, and graduation in

professional schools, whether graduate or undergraduate. In these cases also the public interest must be paramount.

On a somewhat different basis a similar justification must be conceded to the endowed colleges and to private secondary and elementary schools. Any such school or college has a clear legal and moral right to choose the clientele it wishes to serve and to offer its facilities to that group only—only, for example, to the bookishly superior. And, having so chosen, any such school or college may properly make use of selective, standards-maintaining examinations in connection with admission, promotion, and graduation. The process of selective admission especially, in such cases, is in fact a process of educational guidance: guiding into the institution those who may be expected to profit by its facilities, and guiding away—if this be not too sardonic a euphemism for rejection—those who cannot be expected to be successful in the kind of work that is offered.

There is, however, a heavy responsibility upon any such institution to see to it that its selective, standards-maintaining procedures shall have the highest possible reliability for the individual case; because every time those procedures slip serious damage is done to the student victim of the unreliability. Every one knows that at present the reliability of these procedures is grievously low. The fact that of the students admitted to colleges in any September only about one-half will be graduated four years later is evidence on this point. (Of course a number drop out for unforeseeable, non-academic reasons—ill-health, financial difficulties, and the like; but the residue who are ejected or leave voluntarily because they are misfits is very large.) This situation is clearly due to the fact that admissions (whether by College Board examinations, or Regents' examinations, or entrance examinations given by the individual college, or certificate) are based on too little evidence *and* that retention or ejection after admission is also based on too little evidence—in both cases on a very few measurements of low reliability. As a result, even the sacred business of maintaining standards is botched, be-

cause of taking too little trouble, because we rely on evidence that no testing expert would accept as valid. And both the guidance function of the admissions procedure, which should be its primary aspect, and educational guidance after admission are almost ignored—are in fact nearly impossible because of inadequate data. A suggestion for a more adequate method of admissions (a better maintenance of standards!), serving also as a basis for educational guidance within the college, will be developed in a later section of this paper.

When we come to the schools (of every level) which are supported by public taxation, the legal and moral situation becomes entirely different, and *uniform* standards-enforcing examinations must plainly be condemned. These schools are maintained—as so many orators have boasted—to provide education "for all the children of all the people." And we do not do that by setting up Uniform Standards and standards-enforcing examinations, based upon tasks which are useful and goals which are feasible for only one limited kind and degree of capacity, and—through the agency of such examinations—"flunking," demoting, or retarding all other kinds and degrees. It seems clear that we cannot make further progress in our public schools, elementary and secondary, towards a really democratic education or a really effective education for citizenship until we are prepared to set up a multiplicity of differentiated standards, as suggested above. For really democratic public education must be the exact opposite of the fallaciously democratic uniform education we have heretofore sought to impose.

The category of public education includes, of course, the tax-supported state universities and state colleges. These institutions commonly feel themselves to be in a cruel dilemma in the matter of Standards. They are practically all required by law, or by public opinion which would quickly crystallize into law if flouted, to admit all or substantially all graduates of the public high schools of the state—a group which obviously includes varying kinds and degrees of capacity. On the other hand, their administrations and faculties usually hold,

with almost religious fervor, that they must uphold Standards—meaning uniform, high, bookish standards—comparable to those of the great endowed universities.

The practical solution of this *impasse* which some of them have adopted is to receive nearly all comers, as required by law or public opinion, but to effect, shortly after admission, a wholesale elimination, by maintaining in the college course—through the agency, largely, of examinations and quizzes—Standards which the "non-college material" cannot meet. This is one of the most brutal and indefensible procedures that any type of education has ever sponsored.

And the dilemma which has led to it exists only in the minds of faculties and administrations. By what commandment—other than that of blind imitativeness and conformity—are they required to maintain *for all their students* the kind of Standards that the endowed universities, with their entirely different obligations and responsibilities, have set up?

Certainly a state university should give courses and curricula designed for young people of superior bookish ability, of whom they receive a considerable number, and in those courses and curricula they should maintain Standards second to none; and they must maintain in their professional schools (both graduate and undergraduate) the standards which the respective professions demand; but clearly they should receive into such curricula and schools only those students who have the requisite kind and degree of capacity; and there is no reason why in their huge organizations they should not provide other courses and curricula definitely adapted to other kinds and lower degrees of capacity, in which appropriately differentiated and lowered standards of attainment should be set. They will not be doing a humane or honest job until they either effect such differentiation or else obtain legislative approval for genuinely selective admission and enforce such admission.

So far as I know there is just one state institution which has looked this problem in the face and made progress towards its solution; namely, the University of Minnesota, in the estab-

lishment of its General College, embodying this principle of differentiation of offerings and standards.[3]

VI. EXAMINATIONS AS AN INCENTIVE TO STUDY

One survey of the first (or really the first two) uses ordinarily assigned to achievement examinations, namely, the maintenance of standards and selection, has taken us over considerable ground; but this may be proper enough since these related functions are undoubtedly the dominant ones in most current examining. The other alleged uses may be much more briefly reviewed—with one exception.

The third utility of examinations listed earlier in this article was, it may be remembered, that of providing *an incentive to study*.

This point has been conclusively disposed of by Mrs. Eleanor Perry Wood:

"There is little doubt that students are frequently, if not always, stimulated to greater efforts by examinations, but it is a question whether very many receive any genuinely educational motivation from the examination experiences which they have under the present system. On the contrary, we are all aware of the fact that many students are stimulated and provoked to types of conduct and of habits which are not only uneducational, but in some instances morally as well as intellectually negative. Genuine educational motivation is a compound of the individual pupil's abilities and effective interests, and no motivation can long persist which is not fed by consciousness on the part of the student that what he is doing is significant, and that he is doing it with visible success and with satisfaction to himself." [4]

Putting the matter another way: an examination may constitute a minor, temporary incentive of real educational

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[3] See J. B. Johnston, *Education for Democracy,* University of Minnesota Press, 1934, especially Chapter VI, "New Demands for Differential Treatment of Students in the College of Liberal Arts," and Chapter VII, "The Development of Differential College Curricula."

[4] Eleanor Perry Wood, "Examining the Uses of Examinations," *Harvard Teachers Record,* April, 1933.

quality in cases where the student's task is congenial to his interests and capacities; it provides an occasion for review and summation and a pleasing opportunity for the demonstration of success to himself and his teachers. But what I have elsewhere called the "policial quiz," designed to enforce at least periodical industry upon unwilling students, can result only in "cribs"—very few of them technically dishonest, in the form of notes brought in; nearly all of them in the students' heads, where they have been "crammed" the night before. Morally there is supposed to be a vital distinction between these external and internal "cribs," but so far as effective learning goes there is no substantial difference: in either case the student knows practically nothing about the course a few hours after he leaves the examination room.

VII. EXAMINATIONS AS A METHOD OF INSTRUCTION

A fourth utility attributed to examinations is that they constitute *a method of instruction.*

An impressive phrase; but in many cases where it is used one finds it difficult to give it specific content. In some instances it seems to refer to the incentive-to-study idea already discussed; particularly to the idea that an impending examination may stimulate students to summarize and organize considerable bodies of material covered over a period of weeks or months. It has been granted above that this may be an incidental value of examinations for students who are well placed in the work they are doing.

In other cases the idea seems to be that through examination papers, corrected and returned, students may be apprised of gaps in their knowledge or errors in their thinking, which is certainly true. But unfortunately the great bulk of essay-type achievement tests are so meager in their sampling that the assistance thus afforded to the student is extremely incomplete and random. A considerable number of other gaps and errors which he might have revealed, if he had had what he would have called the bad luck to be asked other questions, are not brought to his attention. Moreover, when the pri-

mary purposes of an examination are those of standards-enforcement and selection (i.e., passing or failing), the psychology of the situation is against much realization of this learning value. The student is likely to regret a mistake not because of the gap revealed in his fabric of knowledge but because of the 10 per cent cut from his grade. And since the 10 per cent is irremediably gone, why bother much about the gap?

It seems to follow that where it is really desired to use examinations as a method of instruction—where, in other words, this idea is more than a rationalization—the examinations should be given definitely and exclusively for this purpose and should be emphatically dissociated from standards-enforcement; that is to say, they should be corrected but not graded; or, if they are graded, it should be most explicitly understood that the grades are solely for the students' own information as to their measure of attainment and will not be recorded or used in any way in connection with passing, promotion, honors, eligibility, or the like. Any teacher who sets out to use tests in this way is likely to find himself modifying his examination papers considerably with respect to scope and type of sampling, and will encounter also a startling metamorphosis in the attitude of his students towards examinations; he will find that they actually relish tests of this kind as interesting and helpful occasions.

This has been the experience of scattered teachers in various schools and colleges who have occasionally experimented with this kind of testing; and it has recently been demonstrated on a large scale under the New Plan at the University of Chicago, as reported in Dean Boucher's new book, in which a number of instances are given and are summarized as follows:[5]

"Though the official Board examinations [for promotion to the Senior College and for graduation] are the only re-

[5] Chauncey Samuel Boucher: *The Chicago College Plan,* University of Chicago Press, 1935, pp. 115, 116.

quired examinations, it was agreed when the New Plan was adopted that reviews, tests, quizzes, and examinations of various types should be given at times and in amounts as needed to attain desired educational results, the need to be determined by faculty and student judgments in the light of experience as each course progressed. Interestingly enough, in not a few courses students have asked that examinations be given more frequently than the instructors thought necessary to acquaint both students and instructors adequately with the rate and degree of progress being made by the students. The tendency is to accede to student requests in such instances. In more than one instance at the end of the Autumn and Winter quarters, after several instructional tests have been given during the quarter upon the conclusion of logical units of work, it has been left to student vote to determine whether a final examination on the entire quarter's work should be given. In every such instance the students have asked for the examination, though they knew that the result would have no officially recorded effect upon their attainment of the junior-college certificate. They did know, however, that the examination papers would be carefully corrected and returned, and would thus serve as an excellent instructional aid in their endeavor to master as much of the field as possible in preparation for the official Board examinations."

Here we have the real thing in the use of examinations as a method of instruction, with the necessary complete dissociation from the standards-enforcement function; which function is taken care of separately at Chicago by the official Board examinations.

VIII. DO EXAMINATIONS CONDUCE TO IMPROVEMENT OF TEACHING?

Next we may consider the value of examinations as a means of stimulating or enforcing *improvement of teaching*.

This idea also seems to have diverse meanings in different mouths. Where it is invoked in connection with such procedures as those of the College Entrance Examination Board and the New York Regents it seems to mean that through the agency of centralized examinations teachers have been led to select materials of instruction which are deemed desirable, to

cover a desiderated amount of such materials, and to be thorough and meticulous in their work, or at least in such aspects of it as will contribute to a good showing in the examinations. But improvement of teaching in this sense is obviously synonymous with the enforcement of standards; which objective or use of examinations has already been discussed with some fullness—except for one point, which is highly relevant under this heading.

That point is the contention of a considerable number of teachers, especially those of the Progressive persuasion, that standards-enforcing examinations, far from contributing to the improvement of teaching, lead to its deterioration; that they force teachers into patterns of routine, compel them to ignore individual differences in their students, kill their spontaneity and initiative, and above all cause them to concentrate on factual material, mere information (to be used in passing the examinations), to the neglect of the vital goals of education, such as growth and power and understandings and appreciations and socialized attitudes.

In my own view there has been historically considerable basis for this objection. Certainly a great many teachers who have taught under the College Board system or the New York Regents' system are wont to proclaim it loudly. From this point of view the item Improvement of Teaching should be stricken from the list of the uses of examinations, and we should set up a new list of *disutilities* of examinations, headed, perhaps, with the item Stultification of Teaching.

Nevertheless it is perfectly clear that we are not going to abandon examinations. They are necessary instruments of too many important educational and social purposes. Accordingly, the best we can do is to minimize as far as possible this aspect of disutility. It will be noted that this aspect inheres chiefly in the standards-enforcing and selective uses of examinations. It does not appear at all, for example, in their genuine, separate use as a method of instruction, nor yet in the remaining major use of examinations, already suggested and to be discussed below, namely, guidance. Moreover, it will tend to

disappear, even in connection with standards-enforcing examinations:

1. As such examinations become more comprehensive, covering larger areas, with more freedom allowed. (The old charges are seldom if ever brought against the College Board's new "English Comprehensive.")

2. If and when we set up a multiplicity of differentiated standards in place of our present Uniform Standards.

3. As we come to use the results even of standards-enforcing examinations less as isolated measures and more in connection with accumulated records of the students' capacities and previous achievements.

IX. THE APPRAISAL OF TEACHERS AND DEPARTMENTS

School and college administrators have long played with the idea that a study of examination results—of the distribution of the grades given by different instructors—might be made to yield some evidence of the comparative teaching effectiveness of the members of their staffs. In the past this idea has usually been abandoned after brief consideration because of the notorious lack of comparability of the old essay-type examinations; but with the advent of the objective and standardized new-type tests it recurs very temptingly.

It is tempting for perfectly legitimate reasons. In the elementary and secondary schools it has been recognized all along that teaching effectiveness should be the principal criterion in the selection, retention, and promotion of teachers; hence a pressing administrative need for measures of pedagogical success much more definite and objective than any we have ever had. Even college and university presidents have admitted the importance of this criterion, and have avowed that they would make use of it more than they do if it could be as definitely appraised as administrative effectiveness or activity in research. And beyond this all experiments looking to the improvement of teaching processes must be somewhat inconclusive until we can have reliable, comparable measures of results.

It does seem possible that in time methods of realizing this highly desirable theoretical utility of comparable tests may be worked out. But it is clear also that for the present any procedures in this direction should be entered upon with caution and watchful skepticism and should be regarded as experimental. No simple comparison of the percentile rankings of the same students in different courses, for example, or of the average or median scores of different classes in the same course, will yield safe interpretations, no matter how objective and reliable the test or tests may be. We must await the development of controls and techniques as yet only partially envisaged.

Some of the items which will enter into an eventual technique can, of course, be foreseen. One such item will undoubtedly be the checking of achievement test results against intelligence test scores; this procedure is already generally followed, and obviously increases the reliability of measurement or indication of probable effectiveness of instruction. As we come to have a larger number of special aptitude tests, a check of achievement test results against specific aptitude scores, as well as against general intelligence scores, should further increase the probability of reliable indication. (For example, achievement tests in music could now be checked, not only against general intelligence, but against the Seashore Measures of Musical Talent; and achievement tests in physics against the arithmetical and analogies subdivisions of the American Council on Education Scholastic Aptitude Test, since scores in these subtests have been found to correlate well with success in physical science.)

But it seems certain that still further controls, including careful definition of necessary limiting conditions, will have to be worked out before administrators will have that dependable yardstick which they so greatly need in this matter.

Even now, however, individual teachers may profitably use examination results, especially on standardized tests, for *self-appraisal,* including the discovery of some of their own shortcomings, such as failure to include or emphasize important

topics or to explain terms and principles with clarity. Such individuals can be trusted to give themselves the benefit of the grave technical uncertainties involved—whereas administrators, even department heads, dealing with others than themselves, might often be tempted out of the necessary caution and come to treat as definite evidence results which would have at most some uncertain probability.

This seems to me about all that can be safely recommended at present under this head—except, of course, in the case of trained investigators thoroughly familiar with testing procedures and the statistical interpretation of test results. But, as already noted, we may reasonably hope for further help at this point as the science and art of testing progresses.

X. THE ACCREDITING OF SCHOOLS AND COLLEGES

Now that we are all dissatisfied with the old quantitative standards for accrediting schools and colleges which were set up twenty-five years ago, we have naturally thought of the possibility of using comparable standardized tests to check up on whole institutions, both secondary and higher. To test the product rather than prescribe the process seems like a good idea, and this idea has already been invoked in studies conducted at Indiana University and at the State University of Iowa and in the elaborate investigation of accrediting procedures sponsored by the North Central Association of Colleges and Secondary Schools, which has resulted in that Association's quite revolutionary new qualitative criteria. In the course of that study, "an extended testing program was engaged in, and institutions were rated according to each test and according to a composite test score." [6] Some idea of rating institutions on the basis of achievement test results was implicit also, of course, in the procedures of the Pennsylvania Study.

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[6] Dr. George F. Zook, "Accreditation of Secondary Schools in the Light of the North Central Association Report," THE EDUCATIONAL RECORD, January, 1935.

But this use of examinations is clearly subject to caveats similar to those already presented in connection with their use for the appraisal of departments or of individual teachers. This is evidently the conclusion reached by the North Central Association's commission, and the whole argument has been so admirably presented by Dr. Zook in a report of that commission's work that I shall take the liberty of quoting him at length:[7]

"At this point may I digress to comment upon a line of discussion which has been interpreted by many people as removing all reason for accrediting colleges and schools. I refer to the development of the testing and personnel movements, which it is said substitute the accrediting of students as individuals for the accrediting of institutions. Such an argument seems very intriguing at first, but I am convinced that conclusions much too far-reaching in character have been drawn from the studies which have been made.

"Recent years have seen a tremendous advance in devising scientific measures for testing the native ability and the achievement of individual students. All of us rejoice at the progress which has been made in this field. We believe that the testing movement will gradually enable us to solve many of our most difficult problems in counseling, guidance, and placement. If I err in my attitude toward this new device of education it is the same error which many other ardent friends of the movement commit, namely, that of placing far greater reliance on the results of tests than dispassionate judgment probably justifies. I mention this because I do not wish my position relative to the value of the testing movement to be misunderstood.

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[7] Dr. George F. Zook, address on "Accrediting Schools and Colleges," delivered at the Second Joint Educational Conference, New York City, November 2, 1933, and published in the report of the Conference, *Educational Measurement and Guidance,* American Council on Education, Washington, D. C., 1933.

"The researches of Professor H. H. Remmers in Indiana and the group at the State University of Iowa, for example, are in point. In both of these states through an extensive testing program of students enrolled in the secondary schools it was demonstrated, first, that there are marked differences between the achievement of students in the various schools, and that the present methods of accrediting schools did not by any means separate out the schools whose pupils on the average achieved the most from those which had lower averages. Furthermore, even the schools with the lowest averages had considerable percentages of students in the upper brackets, while the best always contained many who do not show up well. . . .

"It should be admitted at once, as I have endeavored to do elsewhere in this paper, that the methods used by the accrediting agencies in evaluating the effectiveness of a school or college have been crude and unscientific, but it does not follow, simply because there is a wide difference between two schools as to the levels which their students reach respectively on achievement tests, that one is a better or a more effective school than the other. Any two schools will vary greatly in the types of students which they enroll just as any single school will contain students with a rather wide range of ability. Hence to assume that only those schools or colleges whose students make the highest average on tests are the ones which should receive recognition is to ignore altogether both the level of native ability and of preparation which students possess at the time of entrance. A school or a college may enroll students of fairly high ability and good preparation and yet do relatively a poor piece of work. On the other hand, a school or college enrolling students whose level of native ability and preparation may be fairly low and which adapts its resources vigorously to a program suited to the needs of its students may be in its realm as effective if not more effective than the first institution. Until, therefore, we relate the results of taste for native ability to the results of

achievement tests from the same students, until we compare the achievement of students at the end of two, three, or four years with what they started out with, and until we take into account the differences in objectives which the respective schools and colleges may be expected to have, we have no right to assume that a high level of achievement test scores is any better gauge of the effectiveness of the school or college than the crude methods now being followed by the accrediting agencies as a means of identifying the effectiveness or the quality of the institution. So far as I know, the conclusions which have been reached relative to the substitution of the accrediting of individuals for the accrediting of institutions have not been based on considerations of this kind.

"When that stage of development is reached in the testing program, the results of tests may become a significant means of identifying the quality and the effectiveness of the educational process at a given school or college in comparison with what is found through the same process at another school or college. To whatever extent, therefore, tests can be used in the process of accrediting schools and colleges, I am sure that they will be welcomed as one of the few objective and scientific means of evaluating an institution that we now have at our disposal.

"On the other hand, not even the most ardent friend of the testing movement would claim that the results of tests measure all that we expect our youth to get out of school or college. An English schoolmaster recently said that he believed that the education which a school boy receives out of class was more significant than what he secures in the classroom. Whether we agree with him or not we must agree that tests do not measure this aspect of the educational process very well, if at all.

"In the same way the results of tests do not measure all that we expect a school or a college to be. Fond fathers and mothers, for example, want to know whether the social life of the school or college is healthful; the people of a community

want to know whether their schools have adequate equipment to do the things they attempt to do; the constituency of a school or college wants to know whether the finances are being handled properly; in short, society is interested in the total pattern of an educational institution, including that part of the educational process which can be measured objectively, that part which is imponderable, and even that administrative and physical machinery and equipment commonly regarded as necessary or desirable for an effective school or college.

"I trust, therefore, that you will join me in regarding the accrediting of students through the testing and personnel movements not as a substitute for the accrediting of schools and colleges but as a supplement to it. Both are extremely valuable and important social devices operating for essentially different though supplementary purposes. While the accrediting of individuals may modify the methods of accrediting institutions and even be used as an important means to that end, it will never be more than one of those means. Society is anxious for the new ways of identifying the native ability, the special interests, and the achievement of individuals, but it is equally interested in ways and means of identifying the total effectiveness and the adequacy of the institutions which it establishes for these and other purposes incidental thereto."

Later in the same address Dr. Zook presents what seems to be the nub of the matter in the following sentences: "The testing movement may prove very helpful, but I wish now to hazard the guess that the accrediting associations should not themselves engage in a comprehensive testing program in institutions which are applying for accrediting. They may, however, properly expect an institution to show that it has an active testing program and to make the results available."

In other words, self-appraisal by an individual institution—like an individual teacher—on the basis of test results, is probably feasible and worth while; but for some time to come at least testing should play only an incidental and auxiliary part in general accrediting procedures.

XI. THE EMERGENT MAJOR FUNCTION OF EXAMINATIONS: GUIDANCE

There remain two other utilities which have been claimed for examinations: that they furnish data for educational guidance, and that they accumulate materials for research. But since everyone would admit, I judge, that the latter of these functions must usually be incidental and secondary, we need discuss here only the former: the use of examinations in connection with *educational guidance*—which I have already characterized as their emergent major function.

The reason why guidance is the emergent major function of examining is, of course, that it is the emergent major function of the entire educational process. At long last we are beginning to understand that we must learn our pupils before we can teach them; that unless we know quite a lot about a student's abilities, aptitudes, interests, and personality, and his previous attainments, and his background and circumstances, we cannot, except by blind chance, select the teaching materials (i.e., "courses") or methods or disciplines or goals which will be really serviceable to him; that in the absence of such knowledge we are very likely to impose upon him materials, methods, disciplines, and goals that will be thwarting and stultifying; that in the light of such knowledge, on the other hand, we can—or under a sufficiently flexible system could—plan for him an educational program into which he would throw himself with zest, and in which he could work on his own power, and—almost independently of us—attain that self-education which, as we so often announce, is the only real education.

All of us have now and then the experience of steering some student who has been failing and miserable in a program for which he was not well adapted into some other program which really fits his needs, and seeing him blossom out into happy success. One problem case solved! But we realize now that we ought to be doing this, not now and then, but all the time with all our students at every level. In short we are coming

to appreciate the literal correctness of Professor Morrison's startling dictum "to the effect that teachers should spend half their time studying their pupils as growing individuals, and the rest of their time doing what that study indicates is desirable and necessary." [8]

We are beginning to see also that this doctrine has two major corollaries:

First, *a very great diversification of our courses and methods and disciplines and goals;* the setting up of many differentiated standards, as desiderated above, adapted to all classifiable kinds and degrees of Individual Differences. The theoretical ideal is an individual curriculum built for each individual boy and girl. This ideal we shall never fully attain for practical reasons of administration and expense. But there is no reason why it should not be nearly approached through an adequate increase in the variety of courses and methods of instruction in our existing schools and in new kinds of schools which should be created, *plus* a free and flexible utilization of this variety of courses and methods in the interest of each individual. The increased expense involved could be met from a fraction of the current expenditures of society upon that considerable proportion of crime, unemployment, and destitution which is directly traceable to the malfeasances of our present rigid educational system.

Second, *the general introduction into the schools throughout the Nation of methods now available for the study of individuals and individual guidance.*

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[8] Cited from Dr. Ben D. Wood's "The Major Strategy of Guidance" (EDUCATIONAL RECORD, October, 1934). Readers interested in educational guidance and the relation of examinations to guidance are referred to that article and to two other important articles by Professor Wood: "Basic Considerations in Educational Testing" (read at the National Education Association meeting in Minneapolis, February 28, 1933, and published by the Committee of Educational Testing, May, 1933); and "The Ultimate Basis for Satisfactory College-High School Relations" (*Bulletin of the American Association of Collegiate Registrars,* July, 1934). Reprints of these three articles may be obtained from the Cooperative Test Service, 500 West 116th Street, New York City.

In practice this second corollary will have to be developed first, because it is the easier and cheaper to develop, and because only the actual study of many thousands of individual students in many hundreds of schools and unavailing efforts to provide for the ascertained needs of those individuals within our present rigidities will bring home even to educators, much less to boards of education and the tax-paying public, the desperate need for more diversified facilities.

It has to be conceded, of course, that the methods referred to as being now available for the study of individuals, with a view to educational and vocational guidance, leave much to be desired—are capable of vast improvement. But the fact is that this aspect of the matter has been unduly stressed, and has been stressed largely as a defense mechanism, so that we might feel satisfied to postpone the effort (and expense) of introducing such methods into our own schools.

The other side of the truth, to which so many of us try to close our eyes, is that the methods already known of learning boys and girls—ascertaining their abilities and aptitudes and interests and qualities and backgrounds and circumstances, and assembling such information for intelligent and highly useful use—are sufficient to enable us teachers and administrators to avoid at least many of our habitual mistakes and educational crimes—if only we will make use of them! Does a physician wait until he has a specific for a disease or an absolutely perfect method of diagnosis and therapy before he will undertake a case?

Which brings us back to our central topic of examinations and their use in educational guidance. Guidance has use not only for achievement tests—the only kind we use for all other purposes of examinations—but also, as previously noted, for the other new kinds of tests which the psychologists and testing experts have developed: intelligence tests, special aptitude tests, vocational and avocational interest tests, and personality ratings or other types of personality data (such as the "descriptive" type devised by Dr. Eugene Randolph Smith and the Committee on Records and Reports of the Progressive

Education Association and the anecdotal type developed at the Mechanics Institute of Rochester, New York).[9]

In connection with achievement testing for guidance purposes three points may be made:

1. For the guidance purpose, even more vitally than for other purposes, a high degree of comparability of test results is important. We need to know, not only how well Johnny has done in meeting or excelling the somewhat vague minimum or "passing" standard of some particular teacher or even of some central examining board, but how he *ranks,* in his mastery of various materials of learning, in comparison with large groups of other students with similar and dissimilar backgrounds from similar and dissimilar schools. And we need to be able to compare, reliably, his attainments in various fields at one stage with his attainments in the same or similar fields at a number of later stages, so as to have measures of growth, and especially to enable us to distinguish persistent and fundamentally characteristic interests and aptitudes from others which may be temporary and accidental. These are the essential points which achievement tests can yield for purposes of guidance; that is, as a basis of judgment as to the kind of school that should be attended, the materials and methods of instruction that will be profitable, and ultimately the occupation which may wisely be aimed at. It follows that, for guidance, the new-type, standardized, objective achievement test, because of the vastly greater comparability of its results, is much better than the old essay-type examination alone. Hence the great importance for educational guidance of such series of comparable tests as are now provided by

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[9] One of the best personality rating scales, devised by a subcommittee of the American Council on Education, is described in THE EDUCATIONAL RECORD, July, 1928 (Supplement). Information in regard to the "descriptive" method of recording judgments of character and personality may be had by addressing Dr. E. R. Smith, Beaver Country Day School, Chestnut Hill, Mass. The anecdotal method is described in Dr. Ben D. Wood's "The Major Strategy of Guidance," THE EDUCATIONAL RECORD, October, 1934.

the Cooperative Test Service,[10] and of such broad testing programs as those sponsored by the Educational Records Bureau and the state-wide testing programs developed in Minnesota, Wisconsin, Ohio, Iowa, Colorado, Alabama, North Carolina, Kentucky, and other states.

2. Achievement testing for guidance serves its purpose most clearly and efficiently when it is dissociated from other purposes, especially from standards-enforcement and invidious selection; just as we have already seen that a real and effective use of examinations as a method of instruction must be dissociated from standards-enforcement. The obvious reason lies in the inescapable difference between a student's willing cooperativeness towards an examination the results of which he is assured will be used *for* him, to help him solve his own problems, and his instinctive effort to "beat" any examination whose results are going to be used *against* him, in matters of admission, promotion, or graduation. We may compare the ready willingness of anyone to have his blood pressure taken by his family physician as against the attitude with which the most upright among us would be likely to confront the blood-pressure lie-detector.

3. For the guidance purpose we need a large number of tests of each individual, for the reason already cited, that no single test, and no group of tests to be administered on one crucial occasion, can give us a valid diagnosis of an individual's capabilities or even of his achievements. For such diagnosis, and hence for educational guidance, we need, as I have written elsewhere, *"a series of comparable tests over a period of years,* through which the stresses and accidents of particular occasions may cancel out, and by means of which we may follow both persistent levels and significant changes of capacity, interest, and attainment." [11]

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[10] See H. E. Hawkes, "The Cooperative Test Service," in THE EDUCATIONAL RECORD, January, 1931; or Max McConn, "The Cooperative Test Service," in *The Journal of Higher Education,* May, 1931.

[11] "Educational Guidance Is Now Possible," in THE EDUCATIONAL RECORD, October, 1933.

The foregoing paragraphs contemplate the collection of a large amount of data for each student, including the results of many tests of many kinds over a period of years. With such data must be collated all the definite biographical material the student's adviser can obtain to illuminate his background and circumstances. Obviously we have need of some instrument to assemble this mass of information in clear and significant fashion; and fortunately such an instrument is at hand in the Cumulative Record Card, whether in the original form published by the American Council on Education or in the adaptation used by the Educational Records Bureau or in other variants developed in many schools and colleges throughout the country.

"These blanks or folders" (if I may quote an earlier description) "provide an instrument for organizing and presenting, compactly and in part graphically, on a time projection, all the significant facts, both scholastic and personal, in regard to a student's career. . . . These significant facts include not only school marks and the results of objective tests but also such items as health, physical and mental, family background, financial situation, study conditions and programs, extra-curricular activities, summer experiences, vocational experiences, unusual accomplishments, reported interests, educational and vocational plans, and the like, all carried forward from year to year to exhibit both permanent and changing conditions and tendencies." [12]

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[12] "The Cooperative Test Service," in *The Journal of Higher Education,*" May, 1931. Full descriptions of these forms, with samples, have been published in the *Supplement to the Educational Record* for July, 1928; in the *Program for a Study of the Relations of Secondary and Higher Education* (the "Pennsylvania Study"), issued by the Carnegie Foundation for the Advancement of Teaching, 1928; and in an article on the Pennsylvania Study by the present writer in the *Bulletin of the American Association of Collegiate Registrars,* Vol. V, No. 2 (1929). See also a valuable discussion in Dr. Ben D. Wood's "The Major Strategy of Guidance," in THE EDUCATIONAL RECORD, October, 1934.

Every teacher or administrator or personnel officer who has used such cumulative records knows that in many cases they are almost self-interpreting, that the multifarious data they contain, compactly and sequentially organized and in part graphed, often fall at once into a clear picture, each part reinforcing every other part, and the whole affording decisive answers to such questions as what courses the student should take and avoid, what kind of discipline he needs, what further schooling he should seek, and even what kinds of career he should and should not endeavor to follow—answers often decisive and convincing not only to the teacher or school officer but also to the student himself and his parents. In other cases, of course, the picture is not so clear; one part of the data may seem to contradict other parts; but even such discrepancies usually afford clues for further investigation or experiment, with more hope of a final solution than any other procedure holds out.

Many of us hope that the general introduction into our schools at every level of examinations given and used specifically for guidance, and a parallel general introduction of cumulative records to assemble the results of such examining with all other relevant data, will eventually solve the problem of admission to college and also the problem of guidance in college and with respect to professions, reducing to a minimum failures in college after admission and failures in professional schools and professional licensing examinations.

And we believe also that the increasing use of examinations for guidance and of cumulative records will at last reveal inescapably to all that pressing need, which only a few now perceive, for what I have called the differentiation of standards; involving the provision of many new courses, and of new kinds of schools, and greatly increased flexibility in drawing upon the offerings of every kind of school in the interest of individual needs; in order that we may ultimately provide suitable instruction or training, with feasible goals, for every kind and degree of capacity.

XII. SUMMARY

I set out in this article to survey the actual uses of examination in our current educational practice, with the hope of arriving at some clear doctrine as to the right use of this instrumentality. What conclusions may be drawn from the facts and considerations presented?

It would seem to me it has appeared:

1. That the great bulk of our present huge examining activity is achievement testing, using mainly the old essay-type examination, and devoted to the combined purposes of standards-enforcement and selection.

2. That the standards thus enforced are excellent and beneficial for one particular type of boy and girl and young man and young woman, namely, those of superior bookish ability.

3. That those same standards, however, because of their uniformity and rigidity, are thwarting and damaging to all other kinds and degrees of capacity.

4. That we need, therefore, to serve these other kinds and degrees, many more, diversified standards, involving new kinds of courses and schools and methods and disciplines and goals.

5. That for the demonstration and maintenance of these new diversified standards we shall need a parallel diversification of achievement tests, of improved reliability.

6. That with the development of such diversification, however, the major use of examinations will come to be, not the enforcement of standards, but guidance.

7. That some parts of our present standards-enforcement examining are justifiable, including examinations for professional licensure and for admission, promotion, and graduation in professional schools, endowed colleges, and private secondary and elementary schools.

8. That even in these cases our present standards-enforcing examinations need support and correction from cumulative records of many previous tests and other data in regard to the students' careers.

9. That the enforcement of *uniform* standards in public schools at any level must be condemned; which is merely a corollary of (3) and (4).

10. That the alleged utility of examinations as an incentive to study is largely an illusion and rationalization; at best a minor, incidental value realized only in cases where the goal set is thoroughly appropriate to the students' capacities.

11. That the utility claimed for examinations as a method of instruction can be genuinely realized only when examinations are used specifically for that end and divorced from standards-enforcement.

12. That the utility of examinations for the improvement of teaching is either synonymous with the enforcement of standards or highly dubious; contradicted, in fact, by claims that examinations tend to stultify teaching.

13. That such stultifying effect will, however, tend to disappear as we come to use more comprehensive tests, more diversified standards, and cumulative records.

14. That we have not yet developed the necessary technique for the safe general use of examination results for the appraisal of teachers or departments; but that individual teachers may profitably use such results for self-appraisal and self-diagnosis.

15. That, similarly, testing procedures cannot at present (if ever) be relied upon as the sole basis for the accrediting of schools and colleges, but may constitute a valuable item in accrediting, as contemplated in the new North Central Association criteria.

16. That the emergent major utility of examinations is educational guidance.

17. That the developing doctrine of guidance demands, first, diversification of standards and courses and schools, and, second, the general introduction of the methods now available for the study of individuals.

18. That in examining for guidance we need all known kinds of tests, many of them, preferably comparable tests, and preferably tests used explicitly for this purpose.

19. That cumulative records are essential for the summation and interpretation of personnel data, including test results and other relevant information.

20. That the general use of examinations for guidance and of cumulative records will ultimately go far toward solving the problems of admission to college, of professional and other vocational guidance, and of the needed diversification of standards.

MAX MCCONN,
Lehigh University.

Should the Number of Professional Students Be Restricted?*

SHOULD the number of professional students be restricted? This is no mediaeval, metaphysical question of the How-many-angels-can-dance-on-the-point-of-a-needle type. It is as real as fresh paint on a front door, as timely as today's newspaper, as uncertain as anything that may happen tomorrow.

The question may be approached from three angles. We may approach it from the angle of personal interest. To do so is not necessarily to be selfish. For those of us of middle age or beyond, the answer is not our own immediate concern, for whatever happens we can somehow wag along. Our personal interest is likely to center in the careers of our children and of young friends and students who come to us for counsel.

We may approach the question from the angle of professional interest. Proud of the past of our profession, imbued with its ethics and its spirit, we may honorably argue for its maintenance as it has been built up by the patient labors and the accumulated wisdom of countless workers in the field.

But I am confident you will approve a third approach, that from the angle of general interest: an impartial consideration of this question as bound up with the national problem of professional service in relation to the public weal; an approach which stresses the good of our people as a whole.

In seeking an answer to the question whether the number of professional students should be restricted, I propose to do three things:

1. To present facts as to the actual numbers in the profes-

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*This paper was prepared by Dr. Raymond Walters, Chairman of the Council's Committee on Standards as a preliminary report of that group and was delivered before the Annual Congress on Medical Education in February, 1935.

sions, giving them in clear and orderly fashion without statistical details.

2. To quote views of advocates of differing interpretations and proposals.

3. To venture an opinion which seems to issue from the facts and from other related facts and circumstances.

As to my presentation of facts, may I explain that this very topic is on the agenda of a committee of the American Council on Education, the Committee on Standards of which I have the honor to be chairman; and that members of this committee have cooperated in collecting pertinent studies relating to the professions of law, medicine, college and university teaching, and engineering.

I. What are the facts regarding numbers in the professions during recent normal years?

NUMBERS IN THE PROFESSION OF LAW

An answer for the profession of law is presented in a tabulation by the National Conference of Bar Examiners and also in a study made by a member of our Committee on Standards of the American Council on Education, Mr. Alexander B. Andrews. The tabulation of the Bar Examiners[1] cites the 1930 census which shows 160,605 lawyers in the 48 states and the District of Columbia. This was an increase for the country of 31 per cent over the number in 1920, as compared with an increase of 16 per cent in the population for the decade.

The per capita proportion in 1930 was approximately one lawyer for every 762 persons. There were 131 lawyers for each 100,000 population for the country as a whole. Considerable variation was revealed as to states and the observation of the bar examiners was that "lawyers are more plentiful . . . in the large cities . . . and that the ratio is increasing more rapidly in the large cities."

Interesting comparisons with numbers in the legal profes-

[1] *The Bar Examiner*, July, 1932, Vol. 1, No. 9, pp. 254-257.

sion in European countries were afforded in an address [2] by Mr. Andrews as President of the North Carolina Bar Association in 1929, based on information in *Juristische Wochenschrift,* a weekly legal journal of Germany. These comparisons may be most compactly presented in the table herewith.

Numbers in the legal profession, years 1927-1930 in the countries listed below	*Ratio of population to each lawyer*	*Lawyer per 100,000 of population*
United States	764	131
Canada	1,319	75
England and Wales	2,111	47
France	4,585	22
Germany	4,134	24
Italy	2,310	43
Denmark	2,460	32
Norway	1,689	59
Sweden	16,450	6

One commentator observed [3] that, while "the demand for the quantity of legal services in such countries is less than in the United States, yet in no foreign country is the population per lawyer nearly so small as in the United States."

NUMBERS IN COLLEGE AND UNIVERSITY TEACHING

Facts about the number of teachers in colleges and universities in the United States are provided by the reports of Federal departments and of the weekly educational journal, *School and Society.*

In 1929-30 the teaching staffs of 1,078 universities, colleges and professional schools totalled 71,722 persons.[4] There were, in addition, 14,463 teachers in 331 normal schools and teachers colleges, making a grand total of 86,185 collegiate teachers.[5]

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[2] *Proceedings* of the 31st Annual Session of the North Carolina Bar Association, June 27-29, 1929. Edwards & Broughton Company, Raleigh, N. C.

[3] *American Bar Association Journal,* "A Proposal for a Limited Bar." Sidney Teiser. Vol. XXI, p. 43.

[4] *Biennial Survey of Education,* 1928-30, U. S. Office of Education. Vol. II, pp. 326, 331.

[5] *Statistical Abstract of the United States,* 1933. U. S. Department of Commerce.

In their 1934 enrolment figures reported to the author as a member of the staff of *School and Society,* 567 approved institutions had a total of 67,521 teachers. The ratio on the grand total enrolment in these institutions of 978,632 would be one teacher to 14.5 students.[6]

Comparisons with the two great English universities are afforded through the 1928 report of a Yale University Committee edited by Professors Henderson and Davies which disclosed that the ratio of teachers to students at Oxford was one to 16 and the ratio at Cambridge was one to 15.6.[7]

NUMBERS IN THE ENGINEERING PROFESSION

To our inquiry as to the number in the engineering profession an answer is given in the publications of the United States Census Office.[8] In 1930 there were 226,248 male persons engaged as technical engineers. These included civil, mechanical, electrical, mining and other engineers, but not architects, chemists, designers, draftsmen, inventors, and physicists. It is estimated that about one-half of this group held membership in the national professional societies of engineers and engineering.

The increase for 1930 over 1920, as calculated from the census returns, is about 50 per cent in the number of engineers as compared with an increase of 16 per cent in the population for the decade.

The per capita proportion in 1930 was approximately one engineer for 425 persons; and, of those enrolled in the professional societies, approximately one engineer for 850 persons. There were 231 engineers for each 100,000 population for the country as a whole.

No comparable figures are available as to the number of engineers in European countries.

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[6] *School and Society,* Vol. 40, December 15, 1934. "Statistics of Registration in American Universities and Colleges, 1934." Raymond Walters.

[7] "Incomes and Living Costs of a University Faculty." Yale University Press, 1928, pp. 164-165.

[8] U. S. Census Office, United States Summary, 15th Census, 1930, p. 62. (Quoted by David L. Fiske, *Civil Engineering,* January, 1934, page 16.)

NUMBERS IN THE MEDICAL PROFESSION

In their famous report of 1932[9] on "Medical Care for the American People," the committee in charge of the five-year program declared that "nearly 1,100,000 persons in the United States devote all or a large part of their time to providing medical service." The number of physicians engaged in private practice in 1929 was given as 121,000, the number in medical institutions as 21,000. This total of 142,000 physicians would be in the ratio for the entire country of about one physician to every 852 persons. The range was from one to every 621 in New York State to one for every 1,431 persons in South Carolina. There were, for the country as a whole, 116 physicians for each 100,000 of population.

More recent statistics, given by Dr. Harold Rypins in the *Federation Bulletin*[10] of the State Medical Boards of the United States, show "156,440 licensed physicians at the present time . . . one for every 780 persons."

As to European comparisons Dr. Rypins reports that "England has one doctor per 1,490 persons; France, one per 1,690; Sweden, one per 2,890."

At the present rate, the number of physicians in the United States in 1940 will be 171,700 and in 1980 about 211,800, according to the quoted estimate of the Commission on Medical Education.

II. We come now to the second section of our analysis: a summary of the ways in which the facts just cited are interpreted by different students of the problem, and a summary of specific proposals for solving the problem.

VIEWS REGARDING A LIMITED BAR

"The Bar is decidedly overcrowded," declares Mr. Will Shafroth, advisor to the Council on Legal Education and

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[9] *Medical Care for the American People.* University of Chicago Press, 1932, pp. 4, 5.

[10] *Federation Bulletin.* Vol. XIX, No. 9, September, 1933, p. 280.

Admission to the Bar of the American Bar Association.[11] Mr. Shafroth attacks [12] the Jacksonian idea—

that the practice of law should be open to everyone who aspires to it. . . . It ignores the fact that the incompetents do the public much more harm than the benefits it could hope to receive through decreased costs, both by the giving of bungling advice and inadequate service, and through lowering the moral standards of the marginal lawyer.

That historically the right to restrict the number of attorneys permitted to practice has long been recognized and exercised in England was brought out by Mr. Sidney Teiser of the Portland, Oregon, Bar, in a recent article in the *American Bar Association Journal.*[13] He advocates a plan for "denying admission to the Bar to all applicants until there is a recession to the ratio of reduction determined upon," with a provision that all who are at present studying law should be exempted from this action. "The public welfare is the sole determining factor."

Dean Young B. Smith of the Columbia Law School is quoted as saying that "we continue to get over twice as many lawyers as we need to maintain the 1930 ratio of 131 lawyers to every 100,000 people."

Three counties in Pennsylvania operate a quota system by which their Bars restrict the number of lawyers admitted each year. The Pennsylvania Bar Association recently considered a recommendation of a special committee but did not approve the proposal for arbitrary limitation.

The situation seems to be fairly summed up by Mr. Shafroth:[14]

Generally the feeling in this country is that the adoption of a quota is unnecessary and would result in vociferous protest from the public. If our lawyers act intelligently they will

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[11] *American Bar Association Journal,* December, 1934, pp. 768, 801.

[12] *Notes on Legal Education,* March 1, 1932.

[13] *American Bar Association Journal,* January, 1935, Vol. XXI, No. 1, pp. 42-46.

[14] *Notes on Legal Education,* July, 1933.

forestall it by adopting those methods which have been so successful in the medical profession. First, they will require the two-year college standard before the beginning of law study, and, second, they will, through their Boards of Bar Examiners, require graduation from law schools which competent agencies declare give an adequate legal education.

Approving measures to eliminate weak law schools and to raise standards for admission to the Bar, Dean M. L. Ferson of the College of Law, University of Cincinnati, suggests [15] that "there has been considerable work for lawyers" and that "our present and social economic trend points to still more work for the profession."

VIEWS REGARDING TEACHING LIMITATIONS

The increase in the number of teachers in American universities, colleges and professional schools from 1920 to 1930 was 67 per cent; the increase in student enrolment during the same decade was 86 per cent.[16]

At Yale, from 1918 to 1928, the student body in the four non-professional schools of the university increased 77 per cent, while the faculty number increased 74 per cent. In their 1928 report which cites these figures, the Yale Faculty Committee ascribed the progressive increase in the number of the faculty as "a determining factor in preventing the salary scale from increasing in proportion to the university's income." [17]

The teaching profession has its economic future largely in its own hands. If methods are developed for keeping down the teacher-student ratio, so as to hold the faculty at about its present size, while still giving effective instruction in the larger subjects, a steady improvement in the economic status of the profession may be expected.

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[15] Report "Trends and Needs in the Legal Profession." M. L. Ferson, College of Law, University of Cincinnati.

[16] *Biennial Survey of Education*, 1928-30. U. S. Office of Education, Vol. II, p. 326.

[17] *Incomes and Living Costs of a University Faculty*. Yale University Press, 1928, pp. 92-98.

Evidence in another direction as to trends in certain American colleges was reported by Dr. J. G. Umstattd, who found that in these colleges "the average of appointments per institution decreased from 10.7 in 1920-21 to 6.9 in 1931-32, a decrease of 35 per cent." Dr. Umstattd expressed his thought that "the problem will become more acute as the surplus of unemployed college teachers increases, and should receive immediate, nation-wide consideration."

Consideration by administrators directly concerned was given at the October, 1934, meeting of the Association of American Universities at the University of Chicago.[18]

A paper of Professor S. H. Slichter of Harvard estimated that the drop in academic employment due to the economic depression "has probably been less than 10 per cent," with a shrinkage in the number of professors "much greater in private institutions than in public." Professor Slichter prophesied that "the demand for college and university teachers will increase at a decreasing rate."

Professor George E. Carrothers of the University of Michigan gave an estimate that American universities in the ten-year period from 1924 to 1933 awarded "a grand total of approximately 16,721 doctorates of philosophy." To the question "What to do with the product?" Professor Carrothers answered in terms of college teaching and of teaching in secondary schools. Dean L. P. Eisenhart of Princeton thought it desirable to approximate in the United States what has gone on for years in Europe, where holders of the doctorate and producers of research and literary work are teachers in the *lycée* and *gymnasium*. Dean Edgar S. Furniss of Yale agreed that the secondary schools would gain by taking on doctors of philosophy who have the requisite personal qualifications for teaching younger students; and he suggested also fields such as public service as an outlet for graduate students.

At this same meeting Professor Anton J. Carlson, of the University of Chicago, took definite exception to the doctrine of restricting enrolment because professional fields are

[18] *School and Society*, November 3, 1934. Report by Raymond Walters.

crowded. "Is it such a waste if a Ph.D., unable to find a place in education, goes into industry or business?" Professor Carlson opposed limitation in the professions, following the old guild custom. "Who are we to say nay to those who want to go ahead regardless of the risks?" Dean Charles B. Lipman, of the University of California, seconded this view, saying he objected to such limitation, just as he objected to telling a farmer how much he may plant. "We don't know enough about the future to determine now the number of Ph.D.'s it will need." President Ray Lyman Wilbur, of Stanford University, added his approval of this point of view.

VIEWS AS TO LIMITING ENGINEERING STUDENTS

"A more rapid increase than ever before in the quality and number of trained experts and leaders" was predicted in a report published in 1923 by a joint committee of the National Industrial Conference Board and the Society for the Promotion of Engineering Education.[19] This was the committee's answer to the question, "Do the industries in the United States need more or fewer engineers than the number now being graduated from engineering schools and colleges?"

Eleven years later (January, 1934) a contrary view [20] was given by Mr. David L. Fiske, Secretary of the American Society of Refrigerating Engineers. Mr. Fiske, basing his conclusions on an analysis of U. S. Census figures for forty years, declared that "without regard to the employment influences of the current depression, statistics from 1890 to 1930 reveal signs of future overcrowding."

The facts at hand show mainly that in the next two decades the number of men in the profession will probably increase a third over that employed in 1930, if newcomers are limited to those with four years of college training. Professional and educational programs which disregard this situation must assume that the demand for technical engineering services will increase proportionately.

Calling attention to the sharp falling off in enrollment in

[19] *Special Report No. 25,* National Industrial Conference Board, 1923, pp. 3-11.
[20] *Civil Engineering,* Vol. 4, No. 1, January, 1934, pp. 16-20.

American engineering schools in the past few years, Professor William B. Plank, of Lafayette College, has written [21] that, so far as the mineral industry is concerned, opportunities for employment appear to be good and that in the near future "the demand may easily exceed the supply."

That the 1923 report of the committee of the National Industrial Conference Board and the S.P.E.E. remains valid today is maintained by Dean Herman Schneider, of the College of Engineering and Commerce, University of Cincinnati. In a recent letter [22] Dean Schneider points to "the very wide range of activities covered by the engineer. There is hardly a field of construction, production or distribution in which the engineer has not become the dominant factor." He cites new avenues such as "political science and preventive medicine through the application of sanitary methods, zoning, housing; and the employment of engineers by banks holding industrial concerns." Dean Schneider concludes "that there need be no curtailment in the production of engineering graduates who are soundly trained."

VIEWS AS TO LIMITING MEDICAL STUDENTS

"There should be more effective control over the number and type of practitioners trained." This was one of the nine needs listed by the Committee on the Costs of Medical Care in its 1932 report to which reference has already been made in this paper.

"It is evident," declared Dr. Walter L. Bierring, of Des Moines, Iowa, in a paper read in September, 1933, "that doctors have been trained without any consideration of possible consumer requirements. Overcrowding, like overproduction, already existed when the country was consuming the maximum of professional services." Dr. Bierring then listed some of the social dangers of an oversupply of physicians.

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[21] *Mining and Metallurgy*, May, 1934. "Are Too Many Students Taking Mining Courses?" William B. Plank.

[22] Letter to the President of the University of Cincinnati, February 6, 1935, by Dean Herman Schneider.

Dean W. C. Rappleye, Columbia University Faculty of Medicine, said in October, 1922, at the Minneapolis Meeting of the A.A.M.C.:

> There is no longer the need for the high ratio of physicians to the population which was required in the past. The increased density of the population, the great improvement in transportation and communication, the development of better facilities for medical service in many areas, the influences of preventive medicine, and the training of nurses, technicians and other aides who are able to do some of the work which the physician needs to have done, all tend to make it possible for a fewer number of physicians to do a greater amount of more satisfactory work for a large number of people.

Dean Rappleye advocated restriction of numbers in the medical colleges, at the same time stressing that this is "only a part of the much larger educational problem," which he defined as "providing a more satisfactory and more complete medical service for the people of the country." [23]

Taking part in the same symposium in 1933, Dr. William D. Cutter, secretary of this Council and a member of the Committee on Standards of the American Council on Education, suggested that "medical education is costly not only to the individual but to society" and that "not everyone who aspires to a professional career has a God-given right to receive a long and highly technical training at public expense."

Dean C. R. Bardeen, of the University of Wisconsin Medical School, in this discussion, cited sums earned by Wisconsin physicians in 1930 which, "while not large, represent incomes high compared with those received by the large majority of the population and constitute a potent factor in leading youth to enter the practice of medicine."

> Mere reduction in numbers of those going into various pursuits does not embrace the solution. If there are too many physicians, how about the farmers? . . . What we need today is not so much a limitation in the number of medical school graduates as a greater number of graduates who are experts

[23] Journal of the Association of American Medical Colleges, January, 1934, Vol. 9, No. 1.

in the field of social psychiatry. The World War and the world depression are evidences of a social insanity or social imbecility which constitute a challenge to the priests of Aesculapius and Hygeia.

Dean C. C. Bass, of the Tulane University of Louisiana School of Medicine, also a speaker at the 1933 meeting at Minneapolis, gave as one of his conclusions that "The chances of there being an oversupply of physicians above the public need are not such as to justify serious concern at the present time."

In the discussion of papers, Dr. G. Canby Robinson, of Cornell University Medical College, maintained that "the schools have a very definite responsibility in at least presenting to those considering the study of medicine the problem of the number of physicians and the opportunities of medical graduates." He called attention to competition from other sources for the best type of men. "If we have a situation where the outlook in the profession is not good, we will not get many of those studying medicine who are particularly gifted, men who can make a success in a number of fields."

Referring to Tennessee, Dr. O. W. Hyman, of the University of Tennessee, said that "while we have enough physicians, if we . . . calculate so many people to so many doctors, there were and still are in our state wide territories in which it is true that medical service is inadequate."

Dr. Richard E. Scammon, of the University of Minnesota, commented that "within the last ten years the cities have grown in population by about fourteen million. In the meanwhile, rural communities have decreased by one million, so it seems to me that this is a perfectly natural movement of medical men. There may quite well be a shift the other way."

It was the opinion of Dr. H. G. Weiskotten, of the Syracuse University School of Medicine, that the problem cannot be solved on a provincial or state basis. "The statistics we have indicate that this whole problem of the over-supply of graduates must be considered on a country-wide basis."

Referring to ratios of physicians to population in foreign countries, Dr. Hugh Cabot, of the Mayo Clinic, challenged the inference "that these facts have some important relation to our situation here. I assert that they have none. . . . There is no country in the world at the present time, unless it be England, in which the average American can receive the grade of medical attention which he has come to believe necessary." As to the question of restriction, Dr. Cabot said: "I do not know whether the numbers ought to be limited or not." If there is restriction, he felt that it should be done, not on a vocational basis by the profession, but on an educational basis by the medical schools, of which "a great majority at this time are associated with universities. . . . The universities are today properly regarded by the population in general as a fairly disinterested group, and I think the people will be willing to leave in their hands the decision of whether there should be a diminution or an increase."

"The Medical Profession and the Public" was the topic of papers read at a joint meeting in February, 1934, of the College of Physicians of Philadelphia and the American Academy of Political and Social Science. Several of these papers contained references bearing upon the question of restricting medical students. It was brought out in a paper by Dr. Edgar Sydenstricker,[24] Director of Research of the Milbank Memorial Fund, that:

> Such facts as are available show that in 1929 one-third of all physicians had net incomes of less than $3,000 and one-half less than $3,800. If we grade physicians in income intervals of $1,000, more physicians could be found in the $3,000-$4,000 class than in any other. And this was in the halcyon days! . . . When we consider the investment in the doctor's training and his responsibility, the inescapable conclusion is that large proportions of medical practitioners are not being adequately remunerated.

There was an interesting generalization regarding the quality of medical students as compared with others in the

[24] "The Medical Profession and the Public." The American Academy of Political and Social Science, Philadelphia, p. 25.

paper of Dr. Roger I. Lee, of Boston, in the same symposium. He said:

> The profession of medicine makes a strong appeal to a definite proportion of young men. Of course, the road is long and expensive and the final returns in material things are not great. As a result, the impatient, the avaricious and the casual students do not continue their medical studies. Many youths who mildly fancy that they might like to study medicine are deterred by the preliminary requirements in college. Nevertheless, an adequate number of able and vigorous-minded boys of varying degree of personality continue to seek admission to our medical schools. These boys seem to represent a good cross-section of college youths, and they seem to have more idealism than the average.

Referring to the "limitation of numbers in the first-rate medical schools," Dr. Lee said that "the output of doctors is not running wild in the realm of overproduction about which we hear so much."

At the same meeting, Dr. William Trufant Foster, Director of the Pollak Foundation for Economic Research, gave an address strongly advocating group practice, in which he commented on the willingness of "physicians as a body, especially family doctors . . . to risk their lives and to serve suffering mankind without regard to money rewards."

GENERAL VIEWS REGARDING PROFESSIONAL LIMITATIONS

The "extraordinary growth in the number of students" in the universities of Europe and increasing unemployment in the professions were discussed by Dr. Walter M. Kotschnig of Geneva at a conference of experts in Geneva in August, 1933.

> In almost every country there is a marked increase in the number of medical and law students. The increase in medical students may perhaps be regarded as one of the consequences of the war, which brought the experience of human suffering home to the younger generation as no other event of the last decades had done. The study of law was often taken up even before the war by those who did not know what to study. . . . Many took to higher education because they preferred it to continued unemployment.

Dr. Kotschnig's declaration was that "the number of people who are fitted by intellect and character for university study is necessarily limited"; and he expressed his judgment that the great influx of students has lowered the level within European universities. Dr. Kotschnig and others at the Geneva Conference very definitely urged restriction in the number of professional students, favoring a system of vocational guidance by which more youths should be trained as electricians, agriculturists and craftsmen.

A vigorous critic of current plans to restrict the number of professional students in the United States is Professor Harold F. Clark, of Teachers College, Columbia University. Professor Clark's views were set forth in his book, "Economic Theory and Correct Occupational Distribution," published in 1931, and more recently in an article in the *Journal of Educational Sociology* for December, 1934. In this article he says:

> No group can be trusted with the determination of the number of people to be admitted to that group. The history of groups that have had power to determine their numbers offers conclusive evidence that that power will be misused. . . . The damage caused is not less because plausible excuses are given or even because the protection of society is said to be the cause of the limitation.

Along with physicians, lawyers and engineers, Professor Clark includes dentists and architects and adds: "The plumbers, bricklayers, and carpenters know that there are too many plumbers, bricklayers and carpenters,"

Professor Clark's own proposal is that local and state planning commissions should be organized. "The state commissions will have to combine and set up a national occupational council. This will determine the optimum number of people for each occupation. All the people, of course, will have to be used to do all of the work."

Somewhat the same criticism was presented in a conference at the University of Oregon in July, 1934, by President

George W. Frasier, of the Colorado State Teachers College:[25]

We are told that we have too many farmers, too many shoemakers, too many textile workers, too many miners, too many ditch diggers. . . . If we are to be logical then and follow the advice of the leaders of our professional schools, we would cut down the number of men entering all professions and all occupations. . . . In fact this whole line of argument reduces itself to absurdity. If we were to cut down our population by five to twenty million we would then need fewer doctors, nurses, teachers, artisans, factory laborers, miners, and laborers.

President Frasier then gave as the other side of the question his view that "We do not have too many doctors in America. Large areas of our country are without adequate medical service. . . . We do not have too many teachers in America."

Our surplus labor must be taken up with social services which can be rendered by teachers, playground experts, doctors, nurses, and others who do not produce material things. There is a limit to the number of shoes that can be worn or cars that can be driven. There is no limit to the social services that can be rendered in our changing society.

A PERSONAL VIEW

What I have presented thus far represents material which members of the Committee on Standards of the American Council on Education cooperated in gathering and which the chairman of the committee has assembled and summarized as compactly and objectively as he could.

What follows is not objective but subjective. Other members of the Standards Committee are in no way responsible for it. This is simply a personal opinion, the thought of one man who puts it forward with full recognition of the difficulties of the problem and with no undue confidence that his opinion is right.

My opinion is based upon two assumptions:

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[25] Proceedings of the Conference on Higher Education. University of Oregon, July, 1934, pp. 92-93.

The first is that, in our American democracy today, we should accept as basic, in regard to limiting numbers in the professions, the old Benthamite doctrine: the greatest good to the greatest number. We should have in mind less the advantage of the profession and of those in it than the advantage of all of the people.

A second assumption is that the good of the people is so peculiarly dependent upon the service of the professions that satisfactory conditions within the professions are a matter of public concern. The social welfare of all citizens and the personal welfare of each citizen are bound up with how the lawyer represents us; how the engineer builds the bridges over which we ride; how the college professor teaches our sons and daughters; how the physician averts disease and, when we have it, heals us.

With these two assumptions in mind I propose a new approach to the question of limiting numbers in the professions, a question I shall restrict to the medical profession. This is the approach which emphasizes quality rather than quantity.

It might appear that quantity would be the prime consideration in the light of our principle of the greatest good for the greatest number, and that this consideration would indicate for the profession of medicine those mass methods and techniques by which industry and business in the United States have produced and distributed so efficiently and cheaply. Within certain bounds this is logical; in fact the medical profession has adopted some of these methods and techniques in hospital administration and in the mechanics of group and individual practice of medicine.

But the analogy with industry and business does not hold in the fundamental issue. Industry and business produce and distribute goods. The profession of medicine supplies expert human service which is essentially different from goods. Here are illustrative examples. A class of school children line up for inoculation; in this minor respect they are handled by mass method. But consider the same children in an epidemic or in a wreck of their school bus; the treatment they then

receive is individual. Except for routine administration, medical service is individual in its very nature; it cannot be rendered by mass methods.

What concern has the public as to the number of physicians who serve it? It is vital that there shall be enough available for ordinary conditions and for emergencies. The plight of some country districts, where there are too few doctors, and of some urban sections where specialization has run rampant, emphasizes the lack of satisfactory distribution; and there is beyond this a need for more physcians in public health capacities. It is probable that the number of physicians is less important to the public than their location and availability.

Is the public affected if there are too many physicians? The author agrees with the writers quoted who believe that the evils involved are serious. When overcrowding of the profession drives physicians to acts banned by medical ethics, it is the public which suffers. There is a definite social advantage when the profession is not overcrowded and when its practitioners are substantially rewarded.

I believe that most of our perplexities will clear if we approach the problem from the angle of quality. By quality in the physician I refer to expertness, character and personality. Of these there is no over-supply. If we insist upon quality in these essential and coordinate elements, we shall not have an over-crowded medical profession for the very good reason that, while there are hosts of suitors, the number who can draw the bow of the medical Ulysses is never large. Those who can do so, those who upon this three-fold basis of quality are rightly admitted to the profession of medicine, will in all likelihood be successful and contented and will receive commensurate rewards. Most important of all, in accordance with our democratic principle, the American people will be well served.

Having thus stated my proposal in general terms, let me discuss expertness, character, and personality as I interpret them as criteria for admission to the medical profession.

Expertness. Because medicine is both a science and an art

there are corresponding divisions as to expertness. Everyone grants that the marvelous advances of medicine in the past quarter century have been due basically to scientific research. Vast fields remain for exploration by young men having the bent for research. Since there is no over-supply of research ability, the quest for it among medical students should be a permanent item on the agenda of every medical school.

In medicine as an art, the expert physician is so intelligent and so well trained that he knows and utilizes the findings of science effectively. There is no plethora of such capacity.

Character. I would paraphrase here a definition which William James (physician, psychologist and philosopher) once gave of an English gentleman. The definition would then be: "A physician of character is a bundle of specifically qualified reactions, a creature who for all the emergencies of life has his line of behavior distinctly marked out for him in advance."

The roots of honor in the physician, as John Ruskin wrote, are to keep the people in health and to die "rather than leave his post in plague." Precisely because such a code has become associated with the physician, the lapses of even a few physicians come as a shock. To determine which of the candidates for the medical profession are fitted to measure up to its stern professional standards becomes a peculiar obligation to medicine and to the public.

Personality. There is the sense of vitality which marks the physician's personality. He need not be an Osler, a Welch, or the particular physician whom you would cite as a towering figure. But he should have a personality inspiring confidence and cheer. What every patient knows is that he is helped by the man as well as by the physician.

The element of personality enriched by education and culture makes the physician effective as a practitioner and also as a leader in our democracy. President Conant, of Harvard, recently referred to the way in which distinguished professional men, among them physicians, "profoundly influence the thought and action of the whole country."

If it be granted that expertness, high character, and vital

personality are essential requirements of the physician, the question arises as to who shall measure these qualifications and how.

There are persons who hold that the whole problem of the professions should be dealt with by governmental action, by broad social planning. Whatever our own attitude may be, it is manifest that at the present time no federal or state action is likely.

There are persons who favor judgment by the profession, through its official organizations and commissions. As a layman let me express approval of the trend toward national grouping and recognition of specialists as an advantage to the people in their perplexities as to who is and who is not a properly qualified specialist.

The broad problem of qualifications must, as I see it, be met early. It may well become the responsibility of that agency to which Dr. Hugh Cabot referred as "a fairly disinterested group," namely, the university medical schools.

The medical school is in a position to judge, perhaps better than commissions whether of the laity or of the profession, regarding the quality of candidates for the profession. I believe that our best medical schools are already doing this creditably well. They are making quality the basis for admission, for advancement, for graduation from the medical school.

As to admission they are utilizing various criteria, such as grades attained by applicants in their liberal arts work, scores made in the Medical Aptitude Test, and confidential opinions of the science professors who taught the applicants in the liberal arts college.

As to advancement and graduation, they are employing examinations of both old and new types, including the promising new devices of qualifying examinations for students at the end of two years of work and of comprehensive examinations, along with other content examinations in the senior year, as a final quality test.

All of these academic procedures are of prime importance.

But they are not enough. There remains the necessity to obtain estimates of the cultural and ethical background and outlook of the applicant for admission and of the candidate for graduation. No task facing a dean and faculty calls for more care, wisdom and humility. But undertake it they must.

And now for my concluding thought. It seems to me that, if we accept the doctrine of quality first, the determination of quality among candidates for the medical profession may well be left to the medical colleges. If so there will probably be a solution of our question as to numbers in the profession—a solution which issues from the economic conditions in which we find ourselves. Financial limitations hamper every university and medical school. With stabilized income from tax sources in institutions under public control, with stabilized income from endowments in institutions under private control, with stabilized fees in both types, the gifts which trickle in should be assigned not for more enrolment but for more research and for improvement in teaching facilities.

Each medical college should resist the temptation to take more students merely to make money. Each medical college should hail quality as its obligation and goal as never before. In this policy there should be concurrence by the Council on Medical Education and Hospitals of the American Medical Association, by the Association of American Medical Colleges, and by the Federation of State Medical Boards of the United States. This is an objective, I firmly believe, which is unselfish, devised for no private advantage, but calculated rather to bring the greatest good to the greatest number of American people.

RAYMOND WALTERS,
University of Cincinnati.

Academic Freedom*

THE supreme, all-inclusive duty of a university is to seek to know the truth, the whole truth, and nothing but the truth; a search full free, thorough; for every side, every factor, every angle of every phase of the truth; a search wholly untrammeled, no area *verboten,* no suspicion of financial inducement or tenure-incentive to color findings or to warp honest interpretations.

Just as judges are appointed, not to serve the will of their appointees, but to serve Justice, pure and unalloyed, so scholars are selected by trustees, not to reflect the judgments of trustees, but to serve Truth fearlessly and dispassionately.

Institutions may be organized primarily to serve causes—labor colleges, communistic colleges, capitalistic colleges, sectarian colleges, Nazi-controlled institutions, avowedly indoctrinating from and for one viewpoint; but such "proprietary institutions" are not real "universities" in which scholars may never be hampered in their search by any necessity of arriving at some set objectives or results or of conforming to the views of some particular sect or order. Their search must be unbiased, free, sincere, "without wax."

Never to fetter truth, never to straitjacket progress, never to prostitute knowledge, but ever and only to know and to release truth among men—that is a university.

The right to express is a corollary of the right to know and is subordinate to it. Some of the disrepute attached to universities and academic freedom is due to a bit of confusion at this point, to indulgence in freedom of speech before freedom to think had first been taken advantage of sufficiently. Scholars, as such, are supposed to speak only that which they know and to testify only to that which they have seen. In other words, they are free to speak on subjects on which they have earned the right to be heard; and such right, viz., to set forth the results of thorough research, with comparisons and check-

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* Section from an address, "The Metes and Bounds of Freedom," delivered at the Baccalaureate of Syracuse University, June 2, 1935.

ings of their own and their fellow specialists' investigations, is engraved on the seal of every true university.

For many decades the danger zone of academic freedom, or "area of sensitiveness," was in the field of the physical and natural sciences, where physical evolution seemed to clash with the church's teaching. Now, however, the field for inquisition is in the social sciences, where social evolution seems to clash with the established order.

Society is unquestionably in a state of flux. No one would claim the present economic and social set-up to be final, a closed book. Everyone will grant some measure of imperfection, some need for improvement. It is absurd to expect universities to guarantee continuation of the existing order, just "as is," without revision. Respect and loyalty to past and present are not inconsistent with appraisal and criticism with a view to improvement. Indeed, advocacy by due processes, within prescribed rules of the game, without violence or inciting to violence, with due regard to the rights of others, is a manifestation of pure patriotism.

On specific proposals men differ honestly and should differ tolerantly, each recognizing both the right and the sincerity of the other. Flinging epithets, bogey words, "Fascist," "Communist," at those who differ on method or tempo of change is as decidedly unacademic as either inquisition or boycott are un-American.

Against the background of this realization that the area of the social sciences has become an arena, we ask, "What is this academic freedom of members of a university family?"

In relation to students or to the classroom, it is their right, rather their duty, along with the students, to dig out all the facts without prejudice or passion, to examine and to present all sides of each proposition. For example, social, economic, and political life in all its phases should be thoroughly studied, all schools of thought, all serious plans and proposals, all doctrines, and all *isms*. "A university is an intellectual laboratory where every mental substance imaginable should be brought to be tested and treated, and thus made intelligible."

Too many of the public are guilty of the fallacy of confus-

ing teaching with indoctrinating and distinguish not between teaching about a theory and promoting that theory. Teaching about socialism does not mean trying to make socialists. The very opposite may be the result. "Teaching" any particular subject does not mean either to defend and advocate or to oppose a particular viewpoint, or to try to furnish the student with ready-made ideas, but rather to seek to train him to examine all facts and arguments, to weigh and compare for himself all pros and cons, so he may reach intelligent conclusions.

There is general agreement to the proposition that, however proper it may be for a teacher in an elementary or secondary school to indoctrinate principles, viewpoints or customs on which our civilization is agreed, the method of teaching in a university is that of open inquiry, analyzing and appraising without bias, neither trying to reach nor trying to avoid any particular conclusions.

The true teacher, while having, of course, his own convictions and making no effort to conceal them, yet seeks not to impose his particular point of view, or specially to promote his particular theories. Rather, with personal detachment he will seek to unfold fairly all possible views on controversial issues, even leaning over backward to be sure he is fair to views in disagreement with his own. His efforts are to train students to independent thinking, to refuse to accept on mere assertion or authority without personal investigation and persuasion, to become skilled to resist propaganda from any source, neither blindly accepting as right things as they are nor fanatically hitching his wagon to the comet of a current *ism*.

The teacher's license may bear the imprimatur of a state, but his authority is of the truth only, his loyalty to the truth unalloyedly, and his objective, the whole truth, even if his own pet theories perish in the process.

Academic freedom also protects the university teacher outside the classroom in uttering fearlessly his findings in the field in which he has qualified himself to speak. In other utterances outside the classroom, he has, not academic freedom, but the

freedom common to all citizens; no more, no less. He will, of course, disavow the authority of the university as back of his utterances and disclaim any special consideration. Academic freedom adds no weight to his general utterances, but gives him the same right as any other citizen to make either a sage or a fool of himself, and protects him only from any academic disability as a result of exercising his rights as a citizen, in the same ways as do other citizens.

May I seemingly digress here to consider freedom of speech in its wider application, of which academic freedom is a part?

Whence these fears and questionings among us? Have we not confidence in the truth? It needs not protection by the blinders of ignorance, or the fetters of suppression. It needs not the services of a firing squad, military or academic. Old Gamaliel's philosophy is good for any age: if this thing be of God, you can't stop it; if not of God, you need not try; it will die of inanition.

Have we not confidence in knowledge? Eternally right is the thesis that truth is not established by fiat but by free inquiry, not by edict but by education. A little knowledge may be a dangerous thing, but it is more knowledge, not ignorance, that dissolves the danger.

Have we not confidence in the American people, in their capacity to know and to discriminate, in their balance and poise? Surely in our land we can be confident that truth will be found, will prove winsome and defensible, will prevail. You cannot fool the majority of our people over any considerable period. We insult ourselves in fearing any general serious infection by evanescent agitations. The Gibraltar of our institutions is unmoved by gales of criticism, no matter how tempestuous. Our fear should shame us. Have we no more faith than that in ourselves and our institutions?

The only safe indoctrination is with truth—more and more truth. Repression, ignorance, and half-truths are always dangerous.

One boyhood scene is etched sharply on my memory. I shrank away in fear as my older brother, during an early morning celebration of the great national holiday, poured a trail of gunpowder for a rod or more along the dry pathway

by the millpond and touched off a fuse at the end of it. A sizz, a puff, much smoke—that was all! My fear was due to my only previous knowledge of gunpowder as a dangerous explosive when confined or repressed.

Explosive ideas, allowed expression, prove harmless even if spectacular, but repressed, work destruction.

Freedom of speech provides the antitoxin that will render powerless the virulent germs of radicalism. Will Rogers in a Jubilee broadcast to England recalled the familiar scene in Hyde Park, London, where every group is given full opportunity for self-expression. In the inimitable way in which he frequently clothed sound sense in colloquial parlance, he added:

> It showed me England, like America, can never have communism, fascism, or any other ism. Here was the Black Shirts, and about a hundred yards away was the Communists, and in between was half of London laughing at both of them, and when I thought that was going to be a war it ended quietly.
>
> They sang "God Save the King," and all went home satisfied. They all had had their say, and, after all, nobody wants his cause near as bad as he just wants to talk about his cause.
>
> England, you solved that problem. You certainly let 'em talk. I wish we would do a little more of that over here. Maybe it would be better for us. We would let 'em get it off their minds.

In more dignified prose, Secretary Ickes recently expressed the same idea: "Too much freedom is better than even a little restraint imposed from the outside, because excesses, if indulged in, will in the end either cure themselves or kill themselves."

If we had more sense, and more sense of humor, we might recognize that soap boxes may be society's safety valves, for "there is nothing more tedious than the speeches of the unpersecuted propagandist."

Safety is by way of more truth, not less. Suppression is best achieved, not through repression by authority, by muscle, law or arms, but by turning on the light of more truth. In the darkness, dampness and closeness of the dungeon, vermin, rodents, and germs thrive. The socially pestiferous thrive on

repression and imprisonment. Shakespeare's King Richard suggests the wiser way:

> But when from under this terrestrial ball
> He (the sun) fires the proud tops of the eastern pines
> And darts his light through every guilty hole,
> Then murthers, treasons, and detested sins
> The cloak of night being rolled from off their backs,
> Stand bare and naked, trembling at themselves.

Turn on the light! Its antisepsis kills germs.

Turn on the light! The only cure for communism, for example, is to give to it a better answer, than it can make for itself.

In openness toward the truth, not in a mind closed with partial truth, lies safety. Efforts to stabilize at an imperfect stage, to freeze inequalities and injustices, will build up an in-equilibrium which makes overturn and catastrophe inevitable. This is the way of autocracy, damming back natural progress until the only recourse is revolution; for when convictions deep and clear find opportunity stifled, the only way out is by force, as in 1776.

On the other hand, open-minded adoption of new truth is the way of both safety and progress. Democracy with opportunity to right inequalities and injustices step by step as revealed, progresses by evolution instead of revolution. In American democracy, with its provisions for orderly processes, for responsiveness to new truth, for ballots in place of bullets, there is no call and no place for a program of change by physical force or revolution. Such advocacy is an exotic growth, entirely foreign to this "Sweet Land of Liberty."

Fairly debatable is the question to what extent protection in freedom of speech should be afforded those who would use such freedom to promote what would destroy that very protection both for themselves and others.

But the question still is: By repression or by refutation? If they can be refuted, clearly refutation is the method both of Americanism and of common sense, and nothing more is needed. If they cannot be refuted, they cannot in the long run be successfully repressed.

But let us now return from observations on freedom of speech in general as a background of academic freedom to further specific consideration of the latter.

Academic freedom is neither an individual right nor the natural prerogative of a teacher; neither a license with some magic protection nor a senatelike privilege with immunity. Rather it is the freedom of the teacher to teach within the framework of a university, such freedom finding its charter in truth with the university as its prophet. Hence while not arbitrarily controlled by the university or by any external restraint, it is decidedly subject to natural self-limiting and to limitations by the truth.

Academic freedom is not a blank check; it is limited by the deposits to the teacher's credit, the degree of his scholarly attainments. It is not freedom "to say what you think without thinking what you say"; not the right to unlimited expression whether or not possessing anything worth expressing; not license to scatter about publicly half-baked theories, egotistical vagaries, or to vocalize loose thinking masquerading as liberal thinking; but rather freedom to speak under compulsion of thought that which is worthy of being said by one who is qualified to be heard. The measure of the knowledge bounds the measure of academic freedom.

Moreover, this peculiar brand of freedom is conditioned also by an attitude or spirit befitting its source—truth and the service thereof. It is only for those of academic attitude, scholarly tone, and scientific spirit.

How does this spirit manifest itself and qualify its possessor? By judicial poise, by dispassionate, patient, thorough searching for facts; by deliberate, balanced judgments; by tolerant, temperate utterances; in sharp repudiation of superficiality or prejudice in investigation, inaccuracy or exaggeration in appraisal, sensationalism or dogmatism in advocacy, fanaticism or iconoclasm in activity.

The scholarly attitude also eschews partisanship and scorns propaganda, seeking as it does, not to convert to a viewpoint, but to find and to spread truth unalloyed.

In the original universities the professor's freedom of

speech was correlated with the student's freedom of listening. The former could say what he pleased; the latter could attend or absent himself as he chose—a fair sporting proposition. In these later days when a student is compelled to attend, and possibly to listen, and is dependent for a grade on the fairness, if not the favor, of the professor, the same sportsmanship will limit the teacher to dispassionate and scholarly treatment of the subject for which he has been chosen, to the exclusion of extraneous, controversial, or offensive discussion.

The academic approach is more intellectual than emotional. In chemistry many reactions are conditioned by the temperature of the ingredients. In physics heat is a major factor in accurate measurements and comparisons. Even so there is a temperature appropriate to the discussion of social and economic problems. The man of science keeps the atmosphere of his investigations below boiling point. Light waves can be converted into heat and sound—all too extensively are. The scholar's task is more the reverse process, transmuting sound and fury into enlightenment.

Are professors naturally impractical? Possibly so, and possibly they should be proud of it. Their main concern is with the whole truth, the truth of eternity, rather than with the approximations of the hour. Their more or less detached approach and relation to the passing phase, the current experiments and expedients of blocs, parties, or sects is mainly the scholar's effort to discern trends, analyze the determining forces and motives, delineate the issues basic to the process, and to set these fundamentals forth before men.

For the scholar to be found more valuable as counsellor than an executive or as administrator is both natural and creditable.

Does the immaturity of mind of many students impose any strictures on academic freedom? There are two angles to a reply.

Teachers generally accept as a proper pedagogical restraint the duty of tempering the teaching to the tutee, of guarding against taking unfair advantage of immaturity by indoctrinating before the student has been trained in the technique of independent inquiry. There is general agreement also that

the teacher, with a sadistic delight in shocking the immature student, in ruthlessly ripping up his anchorage, or in smashing his soul's furniture, in disregard of the duty of leading from little to more, away from the incomplete or illogical only by the illumination which comes from personal search and persuasion, should either be reorganized by his colleagues or returned to the graduate school for further training.

But there is the other angle: Students are not as gullible as many alarmists and inquisitors represent—another spectre, created mainly by undue fear. To regard the modern American youth as a docile uncritical receptacle of professorial viewpoints, accepting without question all that is placed before him, malleable at the professor's will, shaped on the classroom potter's wheel—well, it just is not so!

He does not know modern young America who thinks some professor with views at variance with sound thinking and sane judgment can successfully play the Pied Piper. Occasionally perhaps there is a docile disciple; but for each such there are scores alienated, with whom he loses respect and influence.

Since academic freedom is something to be achieved rather than received, won by self-limitation rather than bestowed by an institution, abuse of its privilege usually will be, as President Lowell once suggested, more a "matter of decorum than of discipline." Capital punishment need not be invoked against poor judgment or bad manners.

But there still remains to be considered the duty of an institution to guard against the abuse of its name and influence, against misrepresentation by those who would use it as a megaphone for immature enthusiasm or fanatical advocacies.

There is some question about the effectiveness of a teacher's protest that he speaks only in his own name, not for the university and without its warrant, when his very hearing is obtained and publicity accorded him, not merely as a citizen, but because he is a professor trailing the name of the university. There is no question as to his freedom and right as a citizen, but his utterances unavoidably do raise or lower his value to the university and to his profession, and the value of the university and of his profession to society.

The duty of the teaching profession to guard itself against

abuse by its members is inseparable from the institution's concern for its protection. If a teacher in his public utterances and activities gives the impression of scholarly poise, sagacity, discrimination, tolerance, and fairness, both the university and the profession are benefited. But, per contra, he can bring both into disrepute.

No academic freedom can protect the egotistical, sensational, notoriety-seeking or the intemperate, uncharitable, sharp-tongued from depreciated usefulness to their institution and lessened value to their colleagues.

If the position and power placed in a man's hands by truth for truth are prostituted to partisan propaganda, or if by destroying confidence in his scientific spirit, he discredits his profession and his institution as guides for students and as leaders for the communty, then his fellow-professors should undertake his reformation.

The institution, as such, should err in leniency, for tolerance of even the abuse of freedom is infinitely to be preferred to the assassination of freedom, even if transgressed. Certainly in no sphere should general procedures or policies be established because of, either for or against, the lunatic fringe.

But in most cases, if not all, abuses can and should be cared for by the profession, by fellow-professors, rather than by the institution apart from these. One trouble has been that teachers, anxiously absorbed in occasional necessary and proper efforts to protect some of their members from errors by administrative officers, or by trustees, or in reaction against the attitude of patrioteers and self-appointed custodians of the ark of "truth," have not sufficiently felt the responsibility, or taken over the responsibility, of protecting or purging their own ranks.

There is no use trying to close our eyes to the current wave of hysteria, as natural in economic crises as in war psychoses. The depression tends to stimulate the jitters over communism and other economic sophisms, which incidentally are served only too well by the exaggerated anxiety of their alarmed persecutors. Too many fear and believe the worst, put the worst construction on appearances, out of suspicion color the facts

and the interpretation thereof, ridiculous even though sincere in such suspicion.

This hysteria is not of any one class or group; not peculiar to newspapers, not of a single chain of newspapers. Newspapers as much reflect it as create it. It permeates quite widely.

I am proud of the general community and of America for the place and privilege accorded to university teachers. No group in Syracuse, the state or the nation are less conscious of restraint on the exercise of the duties and privileges of their profession, less conscious of compulsion toward viewpoints, less conscious of the necessity of conformity, or of the necessity to please those with whom or to whom they render service.

Less than lawyers, doctors, clergymen, bankers, business men, publishers, or any other group except the farmers, do they feel the compulsion or operate under necessity of studying to avoid offense to influential or significant clients, patients, parishioners, patrons, customers, subscribers, or public at large.

America has made academic freedom a reality. To a percentage in the highest nineties have professors proved themselves worthy of that trust.

But freedom is all of a piece, whether freedom of opinion, of speech, of the seas, of the air, or of academic association. All phases are of truth, both released and limited by knowledge of the truth.

Focused on one obtruding phase of it as we have been for much of this discourse, it is easy to overlook its wider sweep, the larger concentric circle of its cosmic, eternal, and personal significance. An all-embracing freedom is the goal of humanity's search; our souls are restless with the longing for complete harmony. For several decades intellectually imprisoned by a materialistic philosophy, men now seek release that they may find satisfaction for their stirring spiritual potentialities.

CHARLES WESLEY FLINT,
Chancellor, Syracuse University.

The 1935 College Sophomore Testing Program

I. Introduction

THE introductory and concluding sections which have from 1932 to the present been included as part of the annual report have this year been waived. These sections have normally been given over to the philosophical implications which have their roots in the facts of the report. Since the current issue of the RECORD includes one of the most intriguing and thoughtfully conceived discussions of individualized education as a philosophy, the committee takes pleasure in referring the interested reader to it: *Examinations Old and New: Their Uses and Abuses,* Max McConn.

II. The 1935 College Testing Program

Participating Colleges.—The total number of colleges ordering tests specifically for the college sophomore program was 93; the total number ordering tests for the physics program was 269. The latter project grew out of previous sophomore surveys and is a joint enterprise sponsored by the committee making the present report and the Committee on Tests of the American Association of Physics Teachers. Because a considerable number of the colleges failed to make returns in time for full use in this report, the total number of colleges represented in the percentile tables and tables of averages for the sophomore tests is 78, and the total number of colleges represented in the portion of this report relating to the physics testing program is 132. Since the full report of the physics testing program will appear elsewhere,[1] the list of the colleges participating in it will not be included here. The colleges taking part in the sophomore program are scattered in 35 states; the names are listed below by states:

[1] *The American Physics Teacher,* Supplement, September, 1935.

ALABAMA
Spring Hill College

ARKANSAS
College of Ozarks (4)
Harding College (4)
Hendrix College

CALIFORNIA
*Immaculate Heart College (3) (4)
Mills College (2) (3) (4)
San Benito County Junior College (3) (4)

COLORADO
Colorado State Teachers College (2) (3) (4)

CONNECTICUT
Junior College of Connecticut
Teachers College of Connecticut (2) (3) (4)

DISTRICT OF COLUMBIA
Mount Vernon Seminary (2) (3) (4)
Trinity College (2) (3) (4)

GEORGIA
Emory University (2) (3) (4)
Piedmont College
Shorter College

ILLINOIS
Aurora College (3) (4)
Monmouth College
Rosary College (3) (4)
St. Xavier College (2) (3) (4)
Wheaton College (2) (3) (4)

INDIANA
Manchester College (4)

IOWA
Estherville Junior College (4)
Graceland College (2) (3) (4)
Iowa State Teachers College (4)
Trinity College (3) (4)

KANSAS
Bethel College
St. John's College (2) (3) (4)

KENTUCKY
Berea College (2) (3) (4)
*Caney Junior College (2) (3) (4)
Centre College (2) (3) (4)
*Eastern Kentucky State Teachers College (3) (4)
Louisville Municipal College (3) (4)
University of Louisville (2) (3) (4)

MAINE
Westbrook Junior College (3) (4)

MARYLAND
Blue Ridge College (3) (4)
*St. Joseph's College
St. Mary's Female Seminary (2) (3) (4)
Western Maryland College (2) (3) (4)

MICHIGAN
Adrian College (3) (4)
*University of Michigan

MINNESOTA
Carleton College (2) (3) (4)
College of St. Benedict (3) (4)
College of St. Catherine (2) (3) (4)
College of St. Scholastica (2) (3) (4)
College of St. Thomas (2) (3) (4)
Eveleth Junior College (3) (4)
*Macalester College (4)
Rochester Junior College
St. John's University (2) (3) (4)
*St. Mary's College (4)
St. Paul-Luther College (2) (3) (4)
University of Minnesota (2) (3) (4)
Virginia Junior College (3) (4)

MISSOURI
Kemper Military School (2) (3) (4)

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*Colleges which are not included in the National Sophomore distribution.
(2) Colleges which gave the tests in 1932.
(3) Colleges which gave the tests in 1933.
(4) Colleges which gave the tests in 1934.

Missouri Valley College (3) (4)
Park College (2) (3) (4)
Stephens College (2) (3) (4)

MONTANA
*Carroll College (3) (4)

NEBRASKA
*Municipal University of Omaha
Scottsbluff Junior College (3) (4)

NEW JERSEY
Drew University (2) (3) (4)
Georgian Court College (3) (4)

NEW MEXICO
*University of New Mexico

NEW YORK
Sarah Lawrence College (4)
Oswego Normal School (4)
University of Buffalo (2) (3) (4)

NORTH CAROLINA
Barber-Scotia Junior College (4)

OHIO
Antioch College (2) (3) (4)
Fenn College
*Kenyon College (4)
Muskingum College (3) (4)
*Otterbein College (4)
Wittenberg College (2) (3) (4)

OKLAHOMA
Muskogee Junior College (2) (3) (4)

OREGON
Oregon State Normal School (3) (4)

PENNSYLVANIA
Marywood College (3) (4)
Penn Hall Junior College (3) (4)
Penn State College (4)
Rosemont College (3) (4)
St. Thomas College (2) (3) (4)

RHODE ISLAND
Rhode Island College of Education (3) (4)

SOUTH CAROLINA
The Citadel
*Presbyterian College (3) (4)

SOUTH DAKOTA
Augustana College (4)

TENNESSEE
Knoxville College (3) (4)
Southwestern (2) (3) (4)
*Tusculum (2) (3) (4)
Ward-Belmont School (2) (3) (4)

TEXAS
Paris Junior College (3) (4)
Texas Christian University (2) (3) (4)

VERMONT
Bennington College

WASHINGTON
State Normal School, Bellingham (3) (4)

WEST VIRGINIA
Bethany College (2) (3) (4)

The Tests Used.—The tests used in the 1935 program include the following Cooperative tests: English, Series 1, Literary Acquaintance, General Culture, General Science for College Classes, General Mathematics for College Classes, Contemporary Affairs, French, Spanish, German, Latin, Physics, Chemistry, Zoology, and Botany. These tests are described in some detail in the EDUCATIONAL RECORD for October, 1933, and October, 1934, and in the announcement of the Cooperative Test Service, 500 West 116th Street, New York City.

Combinations of Tests Used.—Not all of the tests listed

above were given in all participating colleges. While most of the colleges gave the General Culture, English, and Literary Acquaintance tests, and a majority the General Science and Contemporary Affairs tests, the combinations of tests used in many colleges varied markedly.

Classes Tested.—Nearly all of the participating colleges gave one or more of the tests listed to the sophomore class; six colleges gave some of the tests to all students in all four college classes. Three colleges tested apparently all students in three classes, and nineteen colleges gave one or more tests to the students in two classes.

While institutional comparisons are not an important concern of the committee, all colleges were asked to indicate what portion of each class was tested. The answers received are not complete enough to warrant more than a presumption that the pupils tested represent a random sampling of the classes in most of the participating colleges. These uncertainties regarding the class and institutional representativeness of the groups tested and the variety of combinations of tests used in each institution should be kept in mind in interpreting the data presented below.

III. SOPHOMORE TEST RESULTS

In this report, the results of the few simple tabulations that have been made will be presented very briefly, with a minimum of interpretation and comment. For the sake of brevity, the tabulations are presented and discussed without reservations regarding the validity of the tests, but the reader should remember throughout that the committee is conscious of the limitations of the tests used.

As already indicated on preceding pages, the detailed analysis of the results of the tests for each college was left to those most conversant with the local situation and those who are, therefore, most able to make useful analyses—the officers in each college. The results of the tests will be valuable to the extent that they are analyzed in the light of local conditions, and to the extent that such analyses are brought to bear upon the fundamental problem of giving to each individual student

a more effective type of educational guidance. From this viewpoint, the most important part of this section of the report will be Table 1 (page 449), since this table will enable each institution to interpret the score of each student on each part of each test in terms of national percentiles. From the viewpoint of the committee, such study of individual students is vastly more important for education than the comparisons of institutions, types of institutions, professional goal groups, and classes, made below. The committee hopes that the large amount of space necessarily taken by even a brief presentation of such comparative data will not raise them in the eyes of the reader from the minor position which they occupy in the committee's whole program.

National Sophomore Percentile Scales.—Table 1 will enable each college to determine, within the limits of the sample available to the committee, the national standing of each student who took one or more of the tests. In view of the large differences among colleges, it may be more convenient for purposes of local analysis for each college to construct similar scales based entirely on local returns. This suggestion is made particularly to those colleges whose averages are far from the national average. This table shows national percentile scores for each of the most widely used of the tests given in April and May, 1935.

The data on college grades were obtained from the participating colleges in accordance with the following directions:

"In column 20 please write the average college grade in all subjects. The average grade should be based upon all grades that are on the official records of the registrar's office at the time this form is filled out. This means that the averages will not include grades for the current semester unless the mid-semester marks are available when this form is filled out. It is requested that in reporting the average grade the code given below be used. This code is necessary because different institutions use different symbols for grades, some using letter grades, A-B-C-D-F or E-G-F-P, etc., and some using percentages. In order to maintain comparability as far as possible between the grades for different institutions please transmute whatever system of grades you use into marks of Excellent, Good, Fair, Poor, and Probation. In some institutions only students who receive 95 or above may be considered excellent. In other institutions a student receiving an average of 85 may be considered excellent. The intermediate points in the code, namely, 2, 4, 6, and 8, are provided in order to permit adjustments

TABLE I—National percentile scales for the tests given in April and May, 1935, to college sophomores. The scales are based upon returns from all sophomores tested, regardless of curricular division or type of institution, for whom reports were received up to June 10, 1935. These tables show true percentiles, calculated from the distributions of scores.

Each score in each column shows the upper score limit of the percentile indicated at the extreme left and right of the line. For example, the bottom entry in the History and Social Studies column shows that all scores of 9 or below have a percentile value of 1; all scores from 10 to 14, inclusive, have a percentile value of 2; and all scores above 155 have a percentile value of 100. Many colleges used different combinations of tests, hence the numbers of cases and of colleges vary from column to column. The mean and sigma of the scores and the number of colleges involved in each column are shown at the top of each column.

	Hist. & S. S.	For. Lit.	Fine Arts	Total Gen. Cult.	Eng. Usage	Spell.	Vocab.	Total English	
No. of Cases	4,679	4,679	4,679	4,679	4,922	4,922	4,922	4,922	
No. of Colleges	60	60	60	60	65	65	65	65	
Mean	66.7	54.6	41.8	163.2	68.2	31.2	47.1	146.4	
Sigma	31.9	33.2	28.3	81.7	17.5	13.6	17.4	41.7	
Percentiles									%iles
100	191	243	188	595	107	55	93	251	100
99	155	155	133	396	100	54	85	229	99
98	144	140	118	364	98	53	82	222	98
97	136	129	110	344	96	53	79	218	97
96	130	123	101	327	95	51	78	214	96
95	125	118	96	315	94	51	76	210	95
94	122	113	92	305	93	50	74	207	94
93	119	110	89	296	92	50	73	205	93
92	116	106	85	288	91	50	72	203	92
91	113	102	82	280	91	49	71	201	91
90	110	99	79	274	90	49	70	199	90
88	106	94	75	261	89	48	68	195	88
86	102	90	71	251	87	47	67	192	86
84	99	86	68	243	86	46	65	189	84
82	95	83	65	235	85	45	64	187	82
80	92	79	63	227	84	44	63	184	80
75	86	73	57	210	81	43	60	178	75
70	81	66	52	195	79	40	57	172	70
65	76	61	47	183	77	39	54	166	65
60	72	57	43	172	74	37	52	160	60
55	67	53	39	161	72	35	50	154	55
50	63	49	36	151	70	33	47	149	50
45	59	45	33	141	67	31	45	143	45
40	55	41	30	132	65	28	42	137	40
35	51	38	27	123	62	26	40	132	35
30	47	34	24	113	60	23	37	125	30
25	43	30	21	103	57	20	34	118	25
20	39	26	18	93	53	17	31	110	20
18	37	25	17	89	52	16	30	107	18
16	36	23	15	85	50	15	29	103	16
14	34	22	14	80	48	14	27	98	14
12	31	20	13	75	46	13	25	94	12
10	29	18	11	70	44	12	24	89	10
9	27	17	10	66	43	11	23	85	9
8	26	16	10	63	41	10	22	82	8
7	24	14	8	59	40	9	21	80	7
6	22	13	7	55	38	9	19	76	6
5	21	11	6	52	36	8	18	73	5
4	19	10	5	47	35	7	17	69	4
3	16	8	4	43	32	5	15	65	3
2	14	6	2	37	29	4	13	58	2
1	9	3	1	27	23	2	10	49	1

TABLE 1.—*Continued*

	Lit. Acq.	Cont. Aff.	Gen. Sci.	Gen. Math.	World History	College Grade	
No. of Cases	4,010	3,090	3,393	985	536	4,100	
No. of Colleges	62	41	39	22	10	55	
Mean	62.4	117.9	50.4	42.5	52.7	5.4	
Sigma	28.0	55.5	24.4	23.5	25.4	1.8	
Percentiles							%iles
100	167	365	170	146	120	9.0	100
99	136	286	125	119	116	9.0	99
98	127	264	114	109	113	9.0	98
97	121	249	107	100	107	8.9	97
96	116	238	102	94	105	8.8	96
95	113	229	98	88	103	8.7	95
94	110	221	94	84	101	8.6	94
93	108	210	91	81	98	8.5	93
92	105	204	88	79	95	8.4	92
91	103	199	85	76	92	8.3	91
90	101	193	83	74	90	8.2	90
88	98	184	79	71	84	8.0	88
86	95	177	76	68	82	7.8	86
84	92	170	73	65	80	7.7	84
82	89	164	71	62	77	7.6	82
80	86	159	68	60	74	7.5	80
75	80	146	63	54	69	7.2	75
70	76	137	59	50	64	6.9	70
65	71	129	56	46	61	6.6	65
60	67	122	53	43	57	6.4	60
55	63	115	49	40	53	6.1	55
50	60	108	47	38	50	5.9	50
45	56	102	44	36	46	5.7	45
40	52	96	41	33	43	5.5	40
35	49	90	39	30	39	5.3	35
30	45	84	36	28	36	5.1	30
25	41	78	33	25	33	4.8	25
20	37	72	30	23	29	4.4	20
18	36	70	29	22	28	4.2	18
16	34	67	27	21	26	4.0	16
14	32	64	26	20	25	3.9	14
12	30	61	25	19	23	3.6	12
10	28	57	23	18	22	3.4	10
9	27	55	22	17	21	3.3	9
8	26	53	21	16	20	3.2	8
7	25	50	20	15	19	3.1	7
6	23	48	19	15	18	3.0	6
5	21	44	17	14	17	2.7	5
4	20	41	16	12	16	2.4	4
3	18	37	14	11	15	2.1	3
2	16	32	12	9	13	1.8	2
1	12	25	8	7	11	1.4	1

where there is some doubt regarding the group in which the student's average places him.

Code for Average College Grades:

9 Excellent
8
7 Good
6
5 Fair
4
3 Poor
2
1 Probational or Failing"

TABLE 2.—College sophomore percentiles for indicated tests and types of colleges. This table, while abbreviated, is parallel to Table 1 and is to be read in the same way.

LIBERAL ARTS COLLEGES

	General Culture	Total English	Literary Acquaintance	Contemporary Affairs	General Science	
No. of Colleges.	39	42	38	26	25	
No. of Cases...	3,237	3,395	2,614	1,836	2,042	
Mean.....	169.5	147.2	63.7	124.8	53.1	
Sigma.....	82.9	42.1	28.3	60.1	26.1	
Percentiles						%iles
100	590	251	167	365	170	100
98	375	224	129	277	117	98
93	303	207	110	230	98	93
90	281	201	103	207	89	90
84	250	191	93	183	78	84
80	235	186	88	173	73	80
75	218	179	82	160	68	75
70	203	173	77	147	63	70
60	179	161	68	130	56	60
50	158	150	61	115	49	50
40	137	138	53	102	43	40
30	119	125	46	88	37	30
25	108	118	42	81	34	25
20	97	110	39	74	31	20
16	89	102	35	68	28	16
10	75	89	29	58	23	10
7	66	80	26	48	20	7
3	48	64	19	34	13	3
1	33	50	14	23	9	1

TEACHERS COLLEGES

No. of Colleges.	5	6	6	4	6	
No. of Cases...	628	778	647	813	890	
Mean.....	157.9	149.1	59.5	108.5	48.1	
Sigma.....	77.8	38.1	27.3	48.4	20.2	
Percentiles						%iles
100	490	230	154	365	159	100
98	344	220	118	233	103	98
93	288	201	102	188	77	93
90	267	196	98	169	73	90
84	235	189	88	150	66	84
80	221	184	83	141	63	80
75	206	178	79	130	58	75
70	188	173	74	122	55	70
60	166	163	66	110	49	60
50	146	152	56	99	45	50
40	129	140	49	90	42	40
30	110	129	41	79	37	30
25	102	122	38	74	35	25
20	92	115	34	70	32	20
16	82	109	32	66	29	16
10	66	97	25	58	25	10
7	59	88	23	52	23	7
3	44	73	17	45	18	3
1	28	61	12	38	12	1

TABLE 2—*Continued*

JUNIOR COLLEGES

	General Culture	Total English	Literary Acquaintance	Contemporary Affairs	General Science	
No. of Colleges.	16	17	18	11	8	
No. of Cases...	814	749	749	441	461	
Mean.....	141.8	140.2	60.4	106.5	43.2	
Sigma.....	75.4	43.0	27.2	42.0	22.2	
Percentiles						%iles
100	480	230	146	281	143	100
98	328	221	124	211	97	98
93	265	201	106	176	79	93
90	246	194	99	160	74	90
84	211	184	88	143	64	84
80	197	179	82	137	59	80
75	184	173	77	132	55	75
70	169	168	72	126	51	70
60	148	154	64	112	45	60
50	132	142	58	102	40	50
40	115	132	51	91	34	40
30	98	119	44	82	30	30
25	89	112	41	76	27	25
20	77	103	37	72	25	20
16	67	96	33	67	23	16
10	50	79	27	57	19	10
7	43	70	23	51	16	7
3	28	54	18	40	9	3
1	18	38	12	27	6	1

Percentile Scales for Three Types of Colleges.—In answer to requests from several cooperating colleges, abbreviated percentile scales have been prepared for the most widely used tests for Liberal Arts Colleges, Junior Colleges, and Teachers Colleges, separately. These are presented in Table 2. The differences between these types of colleges are small in relation to the spread of scores within each type, and in relation to the differences between individual college averages within each type. While there is no evidence here of notable differences in the numbers of average, excellent, or "illiterate" pupils in these three types of colleges, it is obvious that the samplings are too small to afford conclusive indications. This reservation emphasizes the great desirability of a more extensive and more systematic participation of American colleges in a common testing program involving comparable tests year after year.

Equivalent Scores on 1934 and 1935 Tests.—The 1934 and 1935 forms of the Cooperative tests used in this program were originally made as closely equivalent as possible, but it is almost never possible to secure exact equivalence, regardless of how carefully the tests were originally made. For this reason the successive annual forms of the Cooperative tests are always experimentally checked for equivalence with the forms of the preceding year, and if, as frequently happens,

TABLE 3.—Equivalent scores of the 1934 and 1935 General Culture, General Science, English Series 1, Contemporary Affairs, and General Mathematics tests. Literary Acquaintance scores of 1934 and 1935 are so nearly equivalent that their inclusion in this table is unnecessary. To convert total General Culture scores, convert each of the three part scores, and summate them. Interpolation should be used to convert scores not shown in the table.

GENERAL CULTURE				ENGLISH SERIES 1							
I. History and Social Studies		II. Foreign Literature		III. Fine Arts		Usage		Spelling		Vocabulary		Total	
1934	1935	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935
268	267	295	295	240	240	105	110	55	55	100	94	265	265
258	257	265	265	235	235	103	108	53	53	98	93	261	261
248	247	255	255	230	230	101	105	51	50	95	90	258	257
236	235	205	205	225	224	100	104	50	48	90	86	254	252
225	223	175	175	220	219	98	101	49	46	87	84	250	247
215	213	145	145	215	213	96	98	48	44	83	81	244	240
205	202	115	115	210	208	87	89	47	42	79	77	238	233
195	192	109	108	205	202	78	80	46	41	76	75	232	226
185	181	98	97	200	197	75	76	44	39	74	73	226	219
175	171	87	86	195	191	71	72	33	29	68	68	215	208
165	160	72	70	185	180	67	67	22	18	65	65	213	207
155	150	60	58	177	171	63	63	12	8	61	59	211	205
145	140	56	55	165	158	58	57	10	7	56	53	209	204
135	130	51	51	155	147	55	54	8	5	48	45	195	191
121	116	46	47	150	141	49	47	4	2	44	43	183	180
111	105	41	43	135	125	44	42	2	1	35	34	174	171
100	94	37	40	130	119	39	38	1	0	24	23	164	160
92	86	32	36	120	108	30	29			13	12	159	154
85	78	26	31	113	100	20	19			6	6	155	149
75	68	21	25	100	86	12	11			0	0	141	135
70	62	15	18	95	82	7	7					130	125
65	57	10	12	91	79	0	0					120	115
57	50	5	6	85	74							110	105
51	45	0	0	80	70							100	95
40	35			75	66							90	85
31	27			70	62							80	75
23	20			65	58							70	65
17	15			61	55							55	50
11	10			55	50							45	40
0	0			50	46							35	30
				45	42							29	25
				40	38							22	20
				20	19							17	15
				10	10							9	9
				0	0							0	0

TABLE 3.—*Continued*

Contemporary Affairs		General Science		General* Mathematics		Contemporary Affairs		General Science		General* Mathematics	
1934	1935	1934	1935	1934	1935	1934	1935	1934	1935	1934	1935
306	470	267	280	122	120	167	202	156	141	8	6
305	375	259	270	99	97	165	199	148	131	4	3
295	363	250	260	83	81	160	192	131	113	0	0
285	351	244	252	64	62	155	186	123	107		
275	339	241	248	57	55	145	174	119	104		
265	327	235	242	54	51	140	168	115	101		
255	315	233	239	50	46	120	146	111	98		
245	303	229	233	47	42	105	130	106	94		
235	291	226	229	45	39	95	118	101	90		
225	279	220	221	44	37	90	112	96	86		
215	267	216	216	42	34	45	65	91	82		
208	258	208	206	40	31	35	54	86	78		
205	254	204	201	36	26	27	44	81	74		
199	246	196	191	33	24	24	40	75	69		
193	238	192	186	30	22	16	30	68	63		
187	230	184	176	20	13	14	27	61	57		
182	223	180	171	17	11	9	20	51	48		
180	220	172	161	15	10	7	17	42	40		
175	213	168	156	13	9	3	11	21	20		
172	209	160	146	11	8	0	4	0	0		

* This table is for sum of Parts I, II, and III. Convert this sum and call Part IV equivalent for the two forms.

they are found not to be equivalent, tables of equivalent scores are constructed so that comparability may be maintained from year to year. Thanks to the cooperation of the University of Minnesota, the University of Louisville, and Texas Christian University, we are enabled to present tables of equivalent scores for the 1934 and 1935 General Culture and General Science tests. From other sources we are able to present a table of equivalent scores for the 1934 and 1935 English Series 1, Contemporary Affairs, and General Mathematics tests. The 1934 and 1935 forms of the Literary Acquaintance test are equivalent. Table 3 will enable any college that used both the 1934 and 1935 tests to compare the students who took the tests in 1934 with those who took the tests in 1935. The equivalence of scores not shown in the table can be calculated by simple interpolation.

Percentile Scales of Foreign Language Tests.—Table 4 shows abbreviated percentile scales for indicated credit groups for each of the four foreign language tests based upon all returns available at the time of writing this report. The numbers of cases are small, and the scales should therefore be used

TABLE 4.—Foreign language test percentiles for indicated credit groups, including students from all four college classes. This table is to be read in the same way as Table 1. In view of the small numbers of cases, the percentiles are here given in abbreviated form.

	FRENCH				SPANISH			GERMAN			LATIN		
Years of College Credit....	1	2	3	4+	1	2	3+	1	2	3+	3	4+	
No. of Cases	562	692	274	77	168	168	61	257	250	65	76	128	
No. of Colleges	25	30	19	12	16	17	12	24	25	6	14	12	
Mean	80	114	145	199	71	88	157	68	86	136	129	149	
Sigma	41.3	46.7	53.2	47.0	41.0	39.4	58.4	37.4	49.0	62.1	46.3	52.1	
Percentiles													%iles
100	226	255	268	270	281	196	271	186	247	257	246	271	100
98	186	220	242	270	166	181	269	159	213	256	227	254	98
93	154	190	222	259	131	147	238	129	162	228	204	230	93
90	141	179	214	256	115	137	232	123	151	222	193	215	90
84	122	162	202	247	103	128	218	108	137	204	179	199	84
80	111	153	195	241	97	119	204	99	130	200	164	192	80
75	102	145	187	234	93	114	197	91	118	182	156	185	75
70	95	137	179	229	88	108	188	84	108	178	152	174	70
60	82	122	159	219	80	96	174	71	95	155	144	162	60
50	73	111	145	211	70	88	162	62	79	125	128	152	50
40	62	99	131	189	56	76	147	55	68	110	107	142	40
30	54	87	116	180	48	65	126	47	55	93	96	128	30
25	50	81	107	165	42	60	109	42	49	82	90	114	25
20	46	73	94	150	37	55	105	36	44	76	83	101	20
16	42	66	86	139	33	46	93	32	38	67	81	90	16
10	36	55	72	124	27	36	72	26	29	55	71	74	10
7	31	49	66	118	18	30	66	23	23	51	67	64	7
3	21	38	45	105	6	25	39	10	15	44	56	54	3
1	11	28	29	101	2	13	23	3	8	33	43	41	1

cautiously. It is the hope of the committee that much larger numbers of the foreign language tests will be used in the 1936 program.

Variability of Achievement in Colleges.—The sixteen colleges included in Chart I were chosen to represent approximately the whole range of medians from the highest to the lowest, and all types of institutions giving the tests to sophomores and making returns in time for inclusion in this report. The indications of this chart are adequately summarized by the paragraphs describing the corresponding charts in the report of the 1932 and 1933 programs.

Chart I shows two types of variability; the first is the variability of median scores of different colleges, and the second is the more significant variability of scores of students in individual colleges. While both types of variability indicate the great need for more adequate educational guidance of students, both before and after they reach college, the second type more particularly defines the immediate opportunity of the colleges to serve those young people who have already

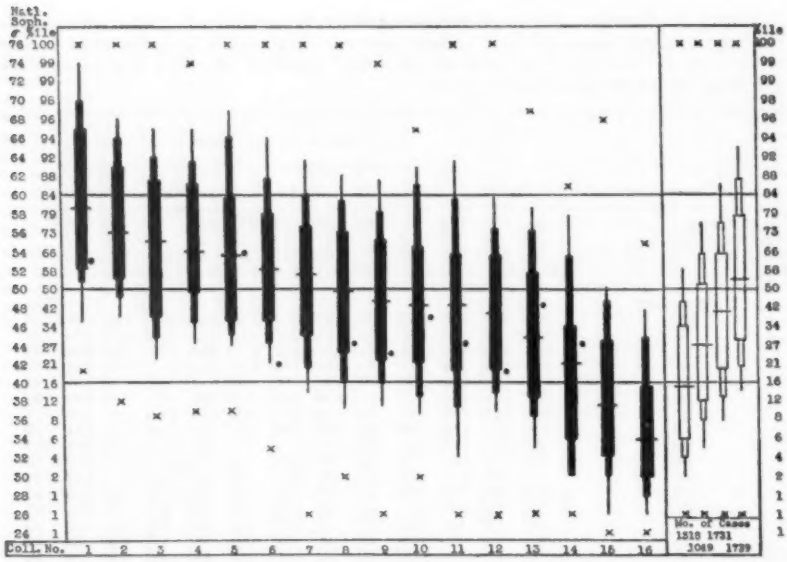


CHART I.—Variability of achievement in participating colleges as measured by the English test. The middle horizontal line shows the national median, and the other two are at the 16th and 84th percentiles of the national sophomore distribution. The percentile scale at the left is based on returns for 4,922 sophomores from 65 colleges that took this test and reported results in time for inclusion in the percentile table. Each bar represents an individual college. The wide portion of each bar represents the range of scores of the middle half of the sophomores in each college. The narrow parts extend to the 16th and 84th percentiles in each college. The lines at the end extend down to the 10th percentile and up to the 90th percentile. The crosses below the bars represent the lowest scores and those above represent the highest scores in the several colleges. The short cross line near the middle of each bar represents the median score of the college. The black dot adjacent to each bar indicates the average grade assigned by the college to the sophomores represented by the bar. Not all colleges reported average grades. The average college grade position is here graphed in terms of college grade national percentiles from the last column of Table 1.

While this chart is based entirely on percentiles, the scale has been altered to correspond roughly to a sigma scale, so that vertical distances are approximately comparable. The sigma scale is derived from the percentile scale.

The sixteen colleges included here are chosen to represent approximately the whole range of averages of the colleges that gave the English test. The numbers of cases in these sixteen colleges vary from 28 to 268.

been admitted, and also, in cooperation with the secondary schools, to serve similar groups of young people who are planning to come to college.

The differences among the colleges whose sophomores participated in this program, as indicated by the differences displayed on Chart I, are very large indeed, so far as achieve-

ment in spelling, usage, and vocabulary is concerned. Similar charts for the General Culture, General Science, and General Mathematics tests, which are omitted from this report to save space, indicate equally large differences in each of these fields.

Chart I is particularly interesting because of the availability of comparable English test data on independent secondary school pupils, represented by the four bars at the extreme right of the chart. The median score of 1,739 twelfth grade pupils in independent secondary schools is slightly above the national sophomore median. The sophomore class medians on the English test are below the median of the ninth grade in two colleges and below the median of the tenth grade in eight of the participating colleges. In one of these colleges, about 75 per cent of the sophomores are below the ninth grade median. In the college which secured the highest median score in the English test, about 15 per cent of the sophomores are below the twelfth grade median. The results on the General Culture, Foreign Language, General Science, and General Mathematics tests are adequately represented by this chart on the English test results.

Variability within Colleges.—These relations are of considerable portent for both the philosophy and practice of educational guidance throughout secondary school and college. In Chart I we are concerned with basic aspects of the native language. The spread of scores within a single college, from far below the ninth grade median of independent secondary schools to far above the national sophomore median, is of basic significance. If these indications are no more than approximately correct, the great need suggested is not so much a more ardent concern over the rectification of institutional standards as a humane ardor for finding and serving the needs of individuals in the heterogeneous and largely overlapping masses that now populate both secondary schools and colleges. It is obvious that, with such student bodies as here indicated, mass standards and "average performance" are not only irrelevant but ironical. It seems equally obvious that no

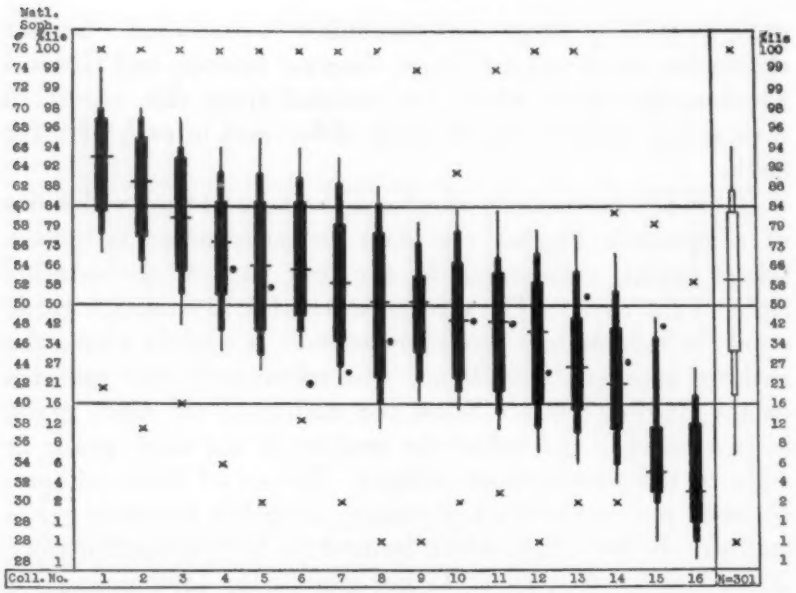


CHART II.—Variability of achievement in participating colleges as measured by the Contemporary Affairs test. This chart parallels Chart 1, and is to be read in the same manner. The open bar at the right represents the distribution of scores of 301 pupils in grades 9 to 12 in 11 independent secondary schools. A group of 410 pupils in grades 11 and 12 in 4 public high schools achieved an average equal to the lower quartile of the 301 independent school pupils.

simple and easy changes can be remotely adequate for making the readjustment demanded by the heterogeneity here exposed. Nothing short of a definite abandonment and repudiation of blanket prescriptions and unmitigated mass standards, and a genuine and whole-hearted acceptance of the fact of individual differences and their increasingly obvious administrative and guidance implications, would seem to be a sufficient reason for hopefulness in regard to this crucial social problem.

Contemporary Affairs Test.—Chart II shows that the colleges are as variable with regard to acquaintance with contemporary affairs as they are with regard to achievement in English, General Culture, Science, and Foreign Languages. The range of college averages in terms of national percentiles is greater in Contemporary Affairs than in English, and the spread of scores within colleges is approximately the same in

Contemporary Affairs as in English. Nine of the colleges in Chart II also appear on Chart I. In general, there is positive correlation between standing on the English and on the Contemporary Affairs test. The open bar at the right shows that 308 pupils in grades 9 to 12 in 11 independent secondary schools are as well acquainted with contemporary affairs as college sophomores. There is evidence elsewhere in this report that the distinction between colleges and secondary schools is not clear so far as the ability and achievement of the students are concerned (see Table 6 and sciences).

Variability of Grading Standards in Colleges.—The black dots at the right of several of the vertical bars in Charts I and II indicate the average college grades of the sophomore graphs represented by the bars. On Chart I, college No. 1, with over 85 per cent of its students above the national average, gives an average college grade to these students that is barely above the national average of college grades, and is actually slightly lower than the average grade in college No. 5. College 6, with a test average at the 58th percentile, gives its students an average grade at the 21st percentile; while college 13, with a test average at the 30th percentile, gives its students an average college grade at the 43rd percentile. Similar discrepancies appear on Chart II, notably in the cases of colleges 5 and 13, and 6 and 15. It is such differences as these which make the transfer problem, from college to college, and from college to graduate school, such an acute one, and which leads this committee to renew its suggestion regarding the use of comparable tests in dealing wth both inter- and intra-institutional problems of individual appraisal and adjustment.

Distributions of College Averages.—Table 5 confirms for all variables the indications of Charts I and II that colleges differ widely with respect to achievement of the types measured by the tests. On some of the tests, several colleges secure mean scores which are at or above the 84th percentile, while equal numbers of colleges secure mean scores at or below the 16th percentile. This means that in some colleges roughly

TABLE 5.—Distribution of college sophomore averages. The sophomore means of all colleges for which data were available are here distributed in terms of national sophomore percentiles. The percentile scale has been altered as in Chart 1, so that the intervals correspond approximately to a sigma scale. The vertical distances are therefore roughly comparable.

Natl. Soph. %iles	Age	Hist. & S. S.	For. Lit.	Fine Arts	Total Gen. Cult.	Eng. Usage	Spell.	Voc.	Total Eng.	Lit. Acq.	Cont. Aff.	Gen. Sci.	Gen. Math.	Coll. Grade	Natl. Soph. %iles
98–100												1			98–100
96– 97															96– 97
94– 95				1									2		94– 95
92– 93						1					1		1		92– 93
88– 91	1		2	2							1	3	3		88– 91
84– 87		1	2	1	2						2	3	1		84– 87
79– 83	2	1	3	2	3	1		1	2	4	1	1	3		79– 83
73– 78		2	5	7	6	1	1	5	1	8	5	1	3	2	73– 78
66– 72	7	5	7	7	6	2	2	5	6	7	4	2	3	1	66– 72
58– 65	5	11	8	7	6	15	5	10	10	6	2	9		5	58– 65
50– 57	7	19	8	11	15	7	13	7	10	9	8	6	1	7	50– 57
42– 49	11	5	10	6	7	15	23	15	14	17	7	5	3	9	42– 49
34– 41	13	9	7	5	3	11	12	10	10	4	4	4	2	14	34– 41
27– 33	9	3	5	3	6	4	7	5	6	6	2	3		8	27– 33
21– 26	5	2		4	4	4	1	4	3		1	1		8	21– 26
16– 20	5	2	1	4	1	1	1	1	1					1	16– 20
12– 15	8					2		1	1						12– 15
8– 11	1		1		1	1		1		1	2				8– 11
6– 7									1						6– 7
4– 5			1								1				4– 5
2– 3															2– 3
1															1
Total.....	74	60	60	60	60	65	65	65	65	62	41	39	22	55	

half of the sophomores are in the highest 16 per cent of the national sophomore group, and in other colleges roughly half of the sophomores are in the lowest 16 per cent of the national sophomore group. Such differences, in conjunction with variable grading standards (Charts I and II), signify much for admissions officers who are considering applications for advanced standing, and for those who are engaged in constructive educational guidance. These data emphasize the need for supplementing present appraising devices with instruments which yield more objectve and more comparable measures.

Comparison of College Averages on the Foreign Language Tests.—Table 6 shows distributions of college averages on each of the Foreign Language tests for indicated college credit groups. The numbers of cases on which the averages actually included in the table are based are quite small, ranging from 1 to 110 or more, but since the averages (or single scores, as the case may be) represent the tested achievement of groups or of individuals officially placed in defined credit groups by the colleges, Table 6 seems to afford significant evidence on the variable meaning of college credits in the foreign languages.

It is apparent that even in a sequential subject-matter like French, groups that are officially equal in training or credit status are extremely variable in tested achievement. The distributions of college averages for the three credit groups overlap approximately in the same way and to the same extent as distributions of individual scores for successive credit groups or classes in a single institution. In several colleges the three-year groups are below the two-year average, and in several colleges the two-year groups are above the three-year average. In a few colleges the average for third-year students is below the average for second-year students in the same college. The positions of the dotted lines in the French test columns afford eloquent comparisons of achievement in the foreign languages in colleges and in highly selected secondary schools. (The medians for grades 10, 11, and 12, incidentally, coincide or almost coincide with the medians of entering college freshmen in selected institutions who had had two, three, and four years of high school French.) In more than

TABLE 6.—Distributions of college averages on the foreign language tests for indicated college credit groups. In computing college credits, one high school year was considered equivalent to one-half college year of credit. The numbers of cases on which the college averages are based range from 1 to 116; if all averages based on fewer than 5, or even 10, cases had been excluded, the relations indicated in this table would not be noticeably different. In the French test columns, the dotted lines indicate ninth, tenth, eleventh, and twelfth grade independent secondary school medians.

The table is to be read as follows: In the 1 to 1½ year column for French, one college secured an average score between 140 and 150; one college secured an average between 120 and 130; and so on to the bottom of the column where it appears that one college secured an average of between 20 and 30 score points. Referring to the dotted horizontal line, it appears that in most of the colleges the 1 to 1½ year college credit groups secured averages below the tenth grade median in a group of highly selected independent secondary schools.

The vertical brackets at the right of each distribution indicate the 25th, 50th, and 75th percentiles from Table 4.

Score	FRENCH				GERMAN			SPANISH			LATIN		Score
	Years of College Credit												
	1-1½	2-2½	3-3½	4+	1-1½	2-2½	3+	1-1½	2-2½	3+	3-3½	4+	
240						1		1					240
230			1	1								1	230
220				2									220
210				2				1				1	210
200			1	1			1			2	1	1	200
190										1	1	1	190
180				1						2		1	180
170			3	2		2					1	1	170
160		4	1										160
150			3	1		1			1		1	1	150
140	1	3	4		1					3	2	1	140
130		1	2	1	2	1	1		2	1	2		130
120	1	5	2		2	3						3	120
110		3	1			2	2	2	1	1	2		110
100	4	4		1	1	1	1			1		1	100
90	4	4	1		2	1	1		2		3		90
80	1	4				3		3	4		1		80
70	4	2			1	3		2	3				70
60	6				5	1		1	3	1			60
50	1				2	2		2	1				50
40					2	4							40
30	2				5			2					30
20	1												20
10								1					10
0					1			1					0
Total Colleges	25	30	19	12	24	25	6	16	17	12	14	12	

half the colleges the 1-1½ year college credit groups secure averages below, and in several far below, the median of tenth grade high school students; only four out of 30 colleges in the 2-2½ year college credit group secure averages above the eleventh grade high school median; and only two colleges in the 3-3½ year college credit group have averages above the twelfth grade high school median.

Comparison of Professional Goal Groups. — Chart III

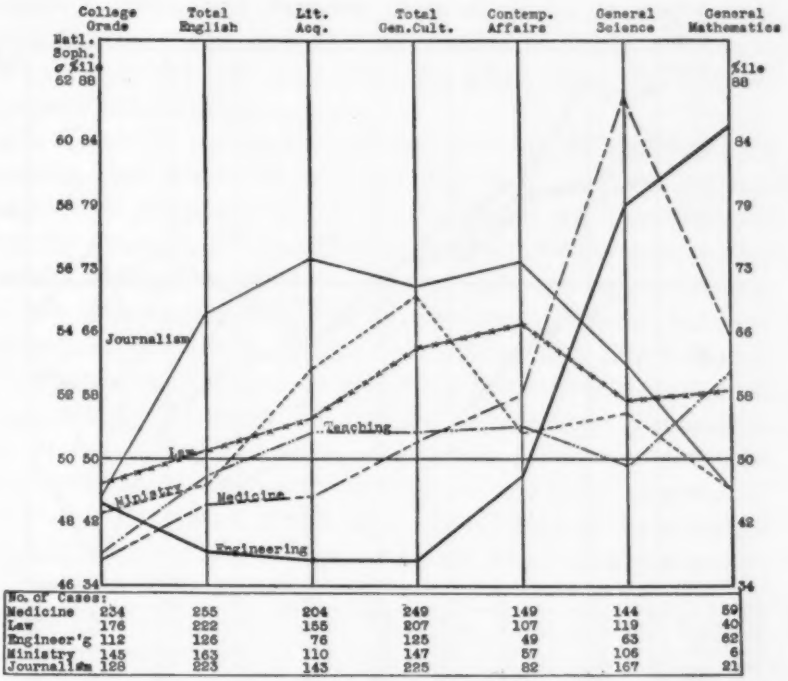
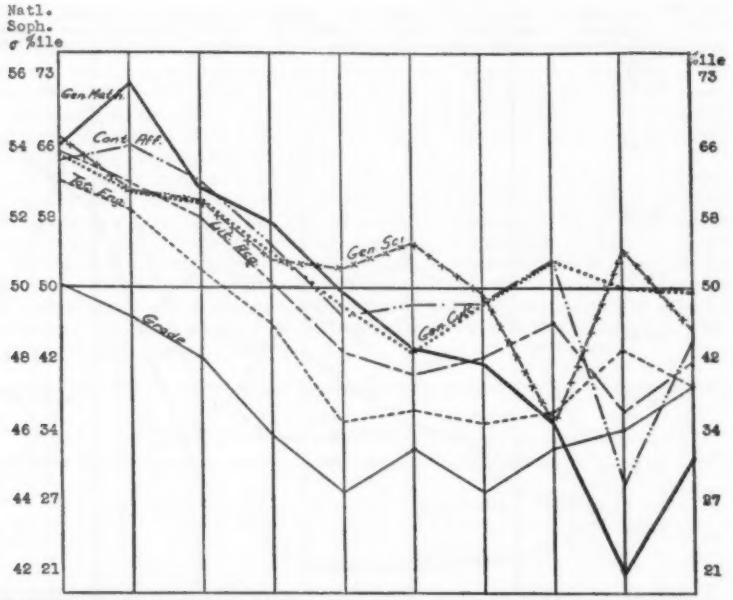


CHART III.—Comparison of professional goal groups. Graphs of means on indicated tests of college sophomores who reported their professional goals. The averages are graphed in terms of national sophomore percentiles arranged as in Chart 1.

shows indicated test averages of sophomores grouped according to their reported professional goals. In order to avoid a multiplicity of lines in the chart, the averages of three groups, business, architecture, and agriculture, are omitted. The averages of the Business group on all variables are at or near the national median; the numbers of cases in the architecture and agriculture groups are too small to be significant.

Chart III affords several interesting contrasts. In general, the medicine and engineering aspirants are relatively high in Science and Mathematics, and low in English, Literary Acquaintance, General Culture, and Contemporary Affairs; while the journalism, law, and ministry groups are low in Science and Mathematics, and high (with minor exceptions) in the other tests. The pre-journalists take highest place in English,



Age Group	17	18	19	20	21	22	23	24	25	26
Gen.Cult.	92	698	1827	1158	432	167	99	51	33	82
Tot.Eng.	92	705	1814	1239	492	207	122	68	39	96
Cont.Aff.	61	414	1128	811	332	125	68	41	14	45
Gen.Sci.	47	380	1314	886	351	153	85	45	33	72
Gen.Math.	20	146	375	237	102	50	22	8	5	15
Lit.Acq.	84	577	1527	1026	371	148	88	48	27	74
Grade	89	666	1525	953	401	173	101	52	34	81

CHART IV.—Comparison of age groups. Means of chronological age groups of sophomores on indicated variables, graphed in terms of national sophomore percentiles arranged as in Chart 1. Since the national distributions show varying degrees of positive and negative skewness, the means as here graphed appear too high for some variables and too low for others. However, it is the direction of the lines, rather than their height on the chart, that is significant here.

Literary Acquaintance, General Culture, and Contemporary Affairs. All pre-professional groups secure average college grades below the national average, the teaching and medical groups being lower in average college grades than any other group.

All pupils in each professional group that took the indicated tests are included in this chart. Since some colleges did not use some of the tests, the numbers of cases vary from test to test. For this reason the indications should be interpreted with cautious reservations.

Comparison of Age Groups.—Chart IV shows the familiar

negative correlation between chronological age and tested achievement. The negative correlation is fairly consistent for all variables from age 17 to 22, after which the relation becomes indeterminate.

In Chart IV means are graphed in terms of national percentiles, and since the national distributions show varying degrees of positive and negative skewness, the lines connecting the averages of the different tests are rather widely separated, some appearing too high and some too low, according to the degree and direction of skewness. Similar but less obvious discrepancies appear in some of the other charts. Throughout this report an effort has been made to make all comparisons in terms of national sophomore percentiles, partly because of the more widespread familiarity with the percentile scale, and partly because of the lesser expense of preparing the report in this way. In calculating the averages of subgroups, as of a college, or an age or professional group, it has been less expensive and more expeditious to calculate means rather than medians, hence the unusual procedure of charting and tabulating means in terms of percentiles, arranged to approximate a sigma scale, as in Chart I. However, the apparent distortion would have been as great if we had derived percentile from sigma scales, instead of the reverse; and for those who may wish to make more exact statistical analyses, the national means and sigmas for each variable are given in Table 1.

Comparison of Men and Women Sophomores.—Chart V indicates that the women are superior in college grade, English, Literary Acquaintance, and General Culture, slightly inferior in Contemporary Affairs, and notably inferior in General Science and General Mathematics.

Relations Between 1934 and 1935 Standings of Colleges That Participated in Both Programs.—The fact that many colleges participated in both the 1934 and 1935 programs makes possible some very interesting comparisons of the relative standings of the 1934 and 1935 sophomore classes in these colleges. The relations are summarized in terms of correlations in Table 7. The correlation coefficients for 1934-

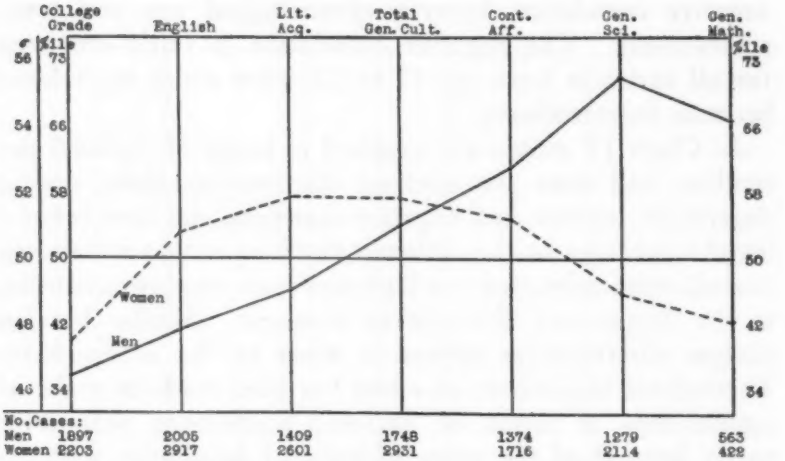


CHART V.—Comparison of men and women sophomores. Graphs of means on indicated tests of men and women. The averages are graphed in terms of national percentiles arranged as in Chart 1.

TABLE 7.—Correlations between 1934 and 1935 sophomore averages of colleges that participated in both programs, with corresponding correlations for 1933-34 and 1932-33. Data on some of the variables were not available for all colleges, hence the numbers of pairs of averages vary from test to test. (Cf. EDUCATIONAL RECORD, October, 1933 and October, 1934.)

Variable	N (No. of Pairs of College Averages)	Correlations 1934–1935	Corresponding Correlations 1933–1934	Corresponding Correlations 1932–1933
Chronological Age	58	0.75	0.85	0.82
College Grade	45	0.55	0.51	0.44
Tests:				
History and Social Studies	50	0.80	0.83	0.65
Foreign Literature	50	0.90	0.91	0.54
Fine Arts	50	0.90	0.90	0.68
Total General Culture	50	0.88	0.90	
Usage	54	0.81	0.76	
Spelling	54	0.77	0.74	
Vocabulary	54	0.88	0.77	
Total English	54	0.88	0.79	0.68
Literary Acquaintance	49	0.69	0.74	
Contemporary Affairs	22	0.71		

1935 standings are not very different from corresponding coefficients for 1933-1934, except that the chronological age coefficient is ten points lower, and coefficients for vocabulary and total English are about ten points higher. These differences are probably due to chance and sampling differences. The lowest correlation coefficient is that for average college grade, as in 1933-1934 and in 1932-1933.

IV. COMPARISON OF COLLEGE CLASSES

College Class Percentiles.—From some points of view the most interesting and significant data yielded by the 1935 testing program are those which enable us to compare two or more classes in the same college or group of colleges. About two dozen colleges tested significant numbers of students in at least two classes, but only six colleges tested students in all four classes. Abbreviated percentiles for the consolidated classes in these colleges are shown in Table 8. These percentiles are given for their general interest and to enable these colleges to study their individual students in the four classes in terms of their own class percentiles. The small numbers of colleges and cases involved in Table 8 make these percentiles less significant than those in Table 1, but they may be of service in special studies undertaken in the colleges that have made this interesting table possible. The committee suggests that larger numbers of colleges test all four classes in the 1936 program.

Overlapping of College Classes.—The overlapping of college classes indicated in Table 8 is shown graphically in Chart VI. In general, the class medians rise from freshman to senior classes, except that the junior median in Literary Acquaintance is lower than the sophomore median, and in General Science and General Mathematics the senior medians are much lower than two or more of the other class medians. These recessions are partly, and perhaps largely due to inadequate sampling, but even so they are quite significant.

Of far greater significance, however, is the fact that even the largest differences in medians are small in comparison

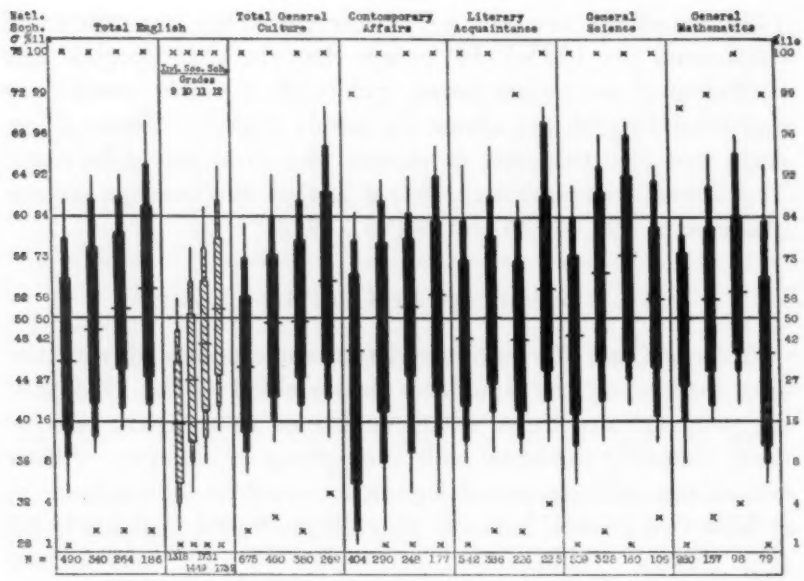


CHART VI.—Comparison of college classes. Graphs of scores on indicated tests of freshmen, sophomores, juniors, and seniors in the six colleges that tested all four classes. The class percentiles are graphed in terms of national sophomore percentiles arranged as in Chart I. All available cases on each test have been added. Varying numbers of the six colleges either omitted or made optional the General Science and General Mathematics tests in one or more of the classes; hence the indications from these tests should be taken with caution.

For comparative purposes, the distributions of comparable English test scores of ninth, tenth, eleventh, and twelfth grade classes in independent secondary schools are graphed beside the English test graphs of the college classes. (Cf. Chart I.)

with the variability of the classes, and the further fact that the variability is approximately equal in all classes. In a basic subject matter such as English there are about half as many very good students in the freshman as in the senior class, and about half as many very poor students in the senior class as in the freshman class. The near-equality of the class medians might appear acceptable if the senior distribution were truncated at the bottom. The presence in the senior class, as in the freshman class, of so many students below the tenth grade median for independent schools, is enough to give one pause; and the fact can hardly be explained except on the ground that time-serving, rather than achievement,

TABLE 8.—Freshman, sophomore, junior, and senior class percentiles based on all returns from six colleges that gave the tests to all four classes.

	Total General Culture				Total English				Literary Acquaintance				
No. of Cases	675	460	380	269	490	340	264	186	542	386	226	225	
Mean	133	163	170	201	131	144	152	157	60	65	58	74	
Sigma	71.6	87.6	85.4	105.9	46.0	43.9	40.8	45.5	30.8	31.7	26.9	35.4	
Class	Fresh.	Soph.	Junior	Senior	Fresh.	Soph.	Junior	Senior	Fresh.	Soph.	Junior	Senior	
Percentiles													%iles
100	469	518	549	565	232	244	235	253	173	167	133	173	100
98	327	404	392	474	222	226	231	237	135	142	121	149	98
93	256	307	313	380	201	208	209	224	112	121	99	132	93
90	235	284	283	360	193	203	203	218	106	113	95	125	90
84	202	239	253	312	182	193	194	205	90	97	90	117	84
80	185	223	234	297	175	187	190	198	83	91	83	107	80
75	168	206	218	261	167	179	184	191	77	85	77	96	75
70	154	189	204	241	159	168	177	185	71	78	73	89	70
60	133	167	177	210	145	156	164	174	60	68	59	80	60
50	116	145	149	180	130	145	153	162	54	60	54	68	50
40	103	126	130	155	117	131	144	148	46	53	46	60	40
30	86	107	116	132	103	116	134	129	40	45	41	52	30
25	79	98	109	120	97	111	126	122	37	42	36	46	25
20	73	91	100	109	90	102	116	115	33	39	32	42	20
16	68	85	92	96	84	96	107	109	30	36	31	38	16
10	58	73	79	76	72	86	98	97	25	27	27	30	10
7	51	66	72	68	64	77	92	86	22	25	24	27	7
3	40	52	60	58	45	67	71	66	17	19	19	21	3
1	31	38	36	48	35	54	52	54	11	14	15	19	1

TABLE 8.—*Continued*

	Contemporary Affairs				General Science				General Mathematics				
No. of Cases	404	290	248	177	539	328	160	106	280	157	98	79	
Mean	95	115	118	128	47	60	65	55	40	47	51	38	
Sigma	59.0	64.6	56.5	67.5	25.0	28.8	30.5	26.5	20.2	25.0	28.1	23.7	
Class	Fresh.	Soph.	Junior	Senior	Fresh.	Soph.	Junior	Senior	Fresh.	Soph.	Junior	Senior	
Percentiles													%iles
100	283	339	306	342	145	170	142	171	108	119	151	116	100
98	239	274	240	294	108	127	127	110	92	111	128	94	98
93	191	229	211	233	90	105	114	99	72	95	102	82	93
90	173	198	201	223	81	101	107	89	64	83	92	79	90
84	152	177	173	201	72	89	99	83	58	72	83	63	84
80	142	167	161	181	66	84	94	75	55	67	73	61	80
75	133	150	152	167	62	80	90	69	54	60	65	48	75
70	122	141	142	158	58	72	85	66	50	56	63	42	70
60	107	124	126	141	51	63	70	58	43	45	48	37	60
50	94	108	114	123	43	58	62	51	38	41	43	31	50
40	77	92	104	105	37	52	54	45	34	36	39	28	40
30	58	80	91	85	32	42	44	40	29	30	32	23	30
25	46	71	83	77	29	38	38	37	25	28	31	18	25
20	36	61	68	70	26	34	36	32	23	25	29	17	20
16	28	52	56	62	24	31	34	28	21	23	28	16	16
10	19	32	41	43	18	25	31	24	16	21	23	14	10
7	15	24	30	33	16	22	26	22	13	18	21	13	7
3	10	13	19	21	8	13	17	18	11	13	15	9	3
1	4	7	13	14	5	11	7	14	6	10	11	5	1

furnishes the basis of promotion from freshman to senior class. It is more than probable that these students achieve social and some intellectual values in passing from the freshman to the senior class; but it seems clear that whatever the nature of these values may be, they are not dependent upon the type of literacy measured by the English test used in this program. Nearly a third of the college seniors in these six colleges are below the median of the freshmen, more than a third of the seniors are below the twelfth grade independent school median, about a fifth of the college seniors are below the tenth grade median, and about five per cent are below the ninth grade median.

The evidence from all these tests, as summarized in all preceding tables and charts, indicates that the basis of credits and of classification of students within colleges is very similar to the basis on which institutional accreditation was granted prior to the recently promulgated changes of the North Central Association (see page 9, report of 1934 program, EDUCATIONAL RECORD, October, 1934). It is obvious that both individual credits and institutional accreditation have been granted on the basis of conditions, influences, and conduct which, although important for certain purposes, are far from being determiners or adequate criteria of the types of achievement measured by the tests used in this program. It seems clear from the available evidence that institutional accreditation is at least as well founded and as accurately and consistently administered as the granting of credits to individual students within institutions. The ambiguities of institutional accreditation have derived from the same weakness as the ambiguities of credits within single institutions—the subjectivity, lack of comparability, and partial irrelevance of the measures used. The committee views with hopefulness the reforms in accreditation procedures recently adopted by the North Central Association.

V. THE COLLEGE SCIENCE TESTING PROGRAMS

As indicated in the 1934 report, among the most promising developments in education are the science department testing

programs growing out of the sophomore surveys of past years. The extensive physics program of 1934 has been continued this year; and the programs in chemistry, zoology, and botany have been expanded to include a somewhat larger number of colleges and students. But perhaps the most significant development during the last year has been the establishment of closer cooperative relations with various departmental associations. Committees have been appointed by the chemistry and zoology associations to collaborate with the Committee on Educational Testing and the Cooperative Test Service in the construction and improvement of tests, and to assist in planning and carrying out testing programs suited to the needs of these departments. Equally gratifying is the appointment of a Committee on Tests by the Mathematics Association of America. The Committee on Educational Testing is confident that, with the aid and guidance of these departmental committees, the testing programs in chemistry, zoology, and mathematics will soon become as extensive and significant as the physics program has become under the leadership of the American Association of Physics Teachers Committee on Tests.

THE PHYSICS TESTING PROGRAM

Participating Colleges.—The number of colleges participating in the physics program in 1935 was 274; of these, 132 sent in their reports in time to be included in this report. Since the names of all participants are included in the full report of the physics testing program (*American Physics Teacher,* Supplement, September, 1935), and since space in this report is available only for a brief summary of the results of the program, the list of colleges is not included here.

The Tests.—The tests were constructed to sample the content of elementary physics and to permit the making of comparable forms. Thus companion forms might be used before and after any given course in elementary physics to measure growth in the subject, and the difference obtained could be regarded as a tentative norm of expectancy for future classes.

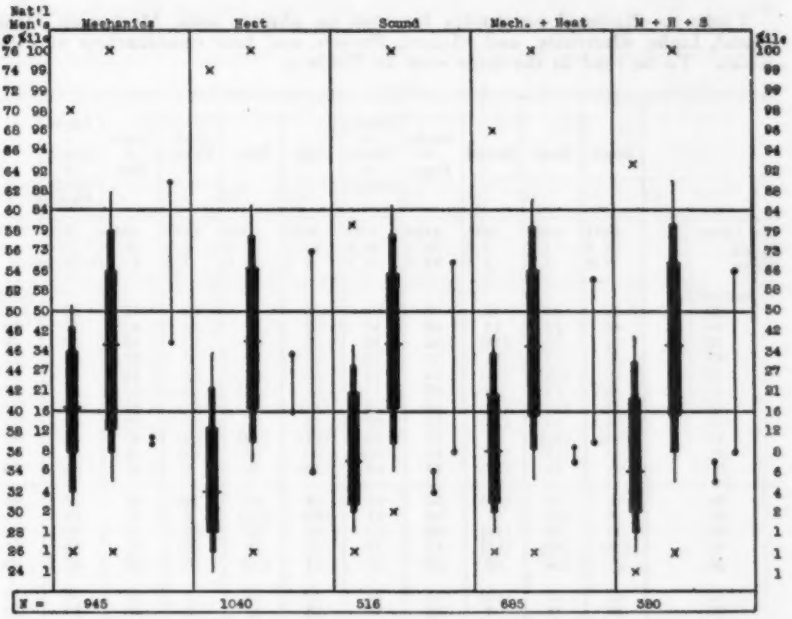


CHART VII.—Pre- and post-study comparisons for Light, Electricity, and Modern Physics. The two bars at the left of each section represent distributions of scores of all students who took the tests both before and after study. The two following lines connect dots representing the pre- and post-study means for the two colleges having the smallest and largest gains in each topic.

The availability of comparable forms has made possible the very interesting and illuminating study of growth in physics achievement during one semester, presented above in Chart VII. Originally the topics of mechanics, heat, and sound were planned for one combined form, and light, electricity and modern physics for the other. Subsequently, however, in answer to demands for atypical combinations, six topics were printed separately as follows: Mechanics, 54 items, 60 minutes; Heat, 30 items, 30 minutes; Sound, 16 items, 20 minutes; Light, 35 items, 40 minutes; Electricity, 44 items, 50 minutes; Modern Physics, 19 items, 25 minutes. Since specialization in physics usually follows and is predicated upon the elementary course, it is recommended that departments continue to use combinations of the topics for diagnostic purposes and for identifying students whose general grasp of elementary

TABLE 9.—National percentiles for men on physics tests, Mechanics, Heat, Sound, Light, Electricity, and Modern Physics, and four combinations of these topics. To be read in the same way as Table 1.

	Mech.	Heat	Sound	Mech. + Heat	Mech. + Heat + Sound	Light	Elec.	Mod. Phys.	Light + Elec.	Light + Elec. + Mod. Phys.	
No. Cases.....	4962	4887	3631	4458	3074	3619	3903	1510	3340	1424	
Mean.....	18.8	14.4	7.5	33.4	40.8	12.2	17.9	4.6	30.0	35.4	
Sigma.....	9.6	5.8	3.4	14.4	17.2	5.8	7.6	3.4	12.3	14.3	
Percentiles											%iles
100	51	30	16	78	94	35	43	19	73	88	100
99	44	27	15	69	83	27	37	14	63	74	99
98	41	26	(15)	66	79	25	35	13	58	69	98
97	39	25	14	63	76	24	33	12	55	66	97
96	38	(25)	(14)	61	74	23	32	11	54	64	96
95	36	24	13	60	72	22	(32)	(11)	52	62	95
94	35	(24)	(13)	58	70	(22)	31	(11)	51	60	94
93	34	23	(13)	57	69	21	30	10	50	59	93
92	(34)	(23)	12	55	66	(21)	(30)	(10)	49	58	92
91	33	(23)	(12)	54	(66)	20	29	(10)	48	57	91
90	32	22	(12)	53	65	(20)	28	9	47	55	90
88	30	21	(12)	51	63	19	27	(9)	45	53	88
86	29	(21)	11	49	61	(19)	(27)	8	44	51	86
84	28	20	(11)	48	58	18	26	(8)	43	50	84
82	(28)	(20)	(11)	47	57	(18)	25	(8)	41	48	82
80	27	(20)	10	45	55	17	(25)	(8)	40	47	80
75	25	19	(10)	43	52	16	23	7	38	44	75
70	23	18	9	41	49	15	22	6	36	41	70
65	22	17	(9)	38	47	14	20	(6)	34	39	65
60	20	16	8	36	44	13	19	5	32	37	60
55	19	15	(8)	34	42	12	18	(5)	30	36	55
50	18	14	7	33	40	(12)	17	4	29	34	50
45	17	(14)	(7)	31	37	11	16	(4)	27	32	45
40	16	13	6	29	35	10	15	3	26	30	40
35	14	12	(6)	27	33	(10)	14	(3)	24	29	35
30	13	11	5	25	30	9	13	2	23	27	30
25	12	10	(5)	23	28	8	12	(2)	21	25	25
20	10	9	4	21	25	7	11	(2)	19	23	20
18	(10)	(9)	(4)	20	24	(7)	(11)	1	(19)	22	18
16	9	8	(4)	19	23	6	10	(1)	18	21	16
14	(9)	(8)	(4)	18	22	(6)	(10)	(1)	17	20	14
12	8	7	3	16	21	(6)	9	(1)	16	19	12
10	7	(7)	(3)	15	19	5	(9)	0	15	18	10
9	(7)	6	(3)	14	18	(5)	8	(0)	(15)	(18)	9
8	6	(6)	(3)	13	(18)	4	(8)	(0)	14	17	8
7	(6)	(6)	2	(13)	17	(4)	(8)	(0)	(14)	16	7
6	5	5	(2)	12	16	(4)	7	(0)	13	(16)	6
5	4	(5)	(2)	11	15	3	(7)	(0)	12	15	5
4	(4)	4	1	10	14	(3)	6	(0)	11	14	4
3	3	(4)	(1)	9	13	2	5	(0)	10	13	3
2	2	3	(1)	8	11	(2)	4	(0)	9	12	2
1	0	2	0	5	9	0	3	(0)	7	10	1

physics is unusual. This practice seems more reasonable for the selection of advanced students and even for identifying special interests than one which would restrict measurement too narrowly to those topics of peculiar interest to a given instructor.

National Percentiles.—Tables 9 and 10 show national per-

TABLE 10.—Abbreviated percentile tables for women on the college physics tests, paralleling Table 9 for men.

	Mech.	Heat	Sound	Mech. + Heat	Mech. + Heat + Sound	Light	Elec.	Mod. Phys.	Light + Elec.	Light + Elec. + Mod. Phys.	
No. Cases.....	711	693	458	662	393	482	446	136	304	128	
Mean.....	14.7	11.6	7.3	26.4	33.9	12.3	14.9	3.7	25.4	28.0	
Sigma.....	7.5	5.1	3.1	11.6	13.7	6.0	6.1	2.8	10.4	11.4	
Percentiles											%iles
100	53	30	15	83	84	33	39	12	57	63	100
98	31	23	13	55	69	26	30	11	50	52	98
93	26	20	12	44	56	21	24	8	41	46	93
90	24	18	11	41	52	20	23	(8)	39	43	90
84	22	17	(11)	38	47	18	21	7	36	40	84
80	20	16	10	35	45	17	20	6	34	38	80
75	19	15	(10)	33	41	16	19	5	32	36	75
70	18	14	9	31	40	15	17	(5)	30	34	70
60	16	13	8	28	37	13	16	4	27	30	60
50	14	12	7	25	33	12	14	3	24	27	50
40	12	10	(7)	23	30	10	13	(3)	22	23	40
30	11	9	6	20	27	9	12	2	20	22	30
25	9	8	5	19	25	8	11	(2)	18	21	25
20	8	7	(5)	17	22	7	10	1	17	20	20
16	(8)	6	4	15	20	6	9	(1)	15	18	16
10	6	5	3	12	16	5	8	0	13	14	10
7	5	4	2	11	14	4	7	(0)	11	11	7
3	2	3	1	8	11	2	4	(0)	9	7	3
1	0	1	(1)	4	8	0	3	(0)	5	3	1

centiles for men and women separately. These tables enable each college to find the rank of each student in the national scales for either sex. These tables show that the tests are

TABLE 11.—Distributions of college averages on physics test topics and four combinations of topics. The means are graphed in terms of national men's percentiles.

Natl. Men's %iles	Mech.	Heat	Sound	Mech. + Heat	Mech. + Heat + Sound	Light	Elec.	Mod. Phys.	Light + Elec.	Light + Elec. + Mod. Phys.	Natl. Men's %iles
88—91	3			1	1	2			1		88—91
84—87	2		1	3	3	1			2	1	84—87
79—83	2	2	3	2	1	3	3	4	3	1	79—83
72—78	3	6	3	5	7	3	7	1	3	4	72—78
66—71	7	5	8	7	6	4	7	4	8	3	66—71
58—65	13	17	12	9	10	16	13	9	15	4	58—65
50—57	20	17	13	16	12	19	15	9	16	8	50—57
42—49	13	13	19	15	10	10	19	6	8	8	42—49
34—41	14	18	7	14	14	10	14	8	14	6	34—41
27—33	8	11	12	10	9	11	6	3	9	5	27—33
21—26	6	9	8	3	3	9	10	4	3		21—26
16—20	6	3	4	4	4	4	2		6	2	16—20
12—15	2	1	2	3	1	2	2		2	2	12—15
8—11	3	1	1	1		1	4		1		8—11
6— 7		1	1		1	1	1		1		6— 7
Total.....	102	103	94	93	82	96	103	48	92	44	

well scaled in difficulty to differentiate the good and poor students in the participating colleges.

Variability of Achievement.—The distributions of scores in individual colleges show the same types and degrees of variability in physics achievement as are shown in Charts I and II above in English and Contemporary Affairs. In some colleges students at the end of the physics course are all below the national average, and in other colleges all or nearly all students are above the national average.

College Averages.—Table 11 shows the fact made familiar by all similar testing programs in colleges and secondary schools, that institutional averages vary almost as widely as do the individual pupil scores in any one institution. In the full report of the physics program (*The American Physics Teacher,* Supplement, September, 1935), distributions of college averages for six types of colleges are shown in a table similar to Table 11. The differences between types of institutions are sufficiently noticeable to tempt one to interesting speculations, but the samplings are obviously inadequate for even tentative conclusions. Moreover, the differences within types are greater than those between types; and differences within single classes are much more significant from every constructive viewpoint than differences between institutions or types of institutions.

Gains in Achievement.—The test results of those colleges administering tests before and after study were analyzed to discover the average gain of all students without regard to type of school, and of student groups in colleges making the largest and smallest gains. The results are shown in Chart VII.

The indications of this chart are so similar to those of the corresponding chart for last year that they may be discussed in precisely the same language that appeared in the 1934 program report: The amount of gain within single colleges varies markedly. These differences, however, are not subject to direct comparison, since the abilities and aptitudes and needs vary from college to college. The average gain for all students is of general interest; the gain of any one is of interest only to that college. It must be kept in mind that the average

class gain must be interpreted in the light of local conditions. Each college must set up its own norms of expectancy, and the deviations from this norm may be analyzed with reference to the individual case. Individual differences cover a wider range, and are educationally more significant than the variations occurring between groups. Charting of single case gains cannot be done in this study; it may be done, however, by each department to determine differences in growth. Doubtless some such charts will be startling. Within the same class, some students will make tremendous gains in achievement, others will make little or none. Those deviations which are most marked may be investigated with a view to further clinical diagnosis and educational guidance. But the average gain for the school is most significant when it is taken as the point of reference for the interpretation of the individual gain.

In this connection it is difficult to exaggerate the importance of the variability of scores in the pre-study groups. All teachers in physics and other subjects are only too painfully aware of the variability in post-study groups, because there are too few classes in which some students are not "flunked"; but not many teachers are clearly aware of the highly important and encouraging fact that a few students at the *beginning* of a course are already able to equal or exceed the average of the whole class at the *end* of a course. Chart VII shows that in Mechanics about 20 per cent of the students at the beginning were above the average of the class at the end of the semester; and in both Mechanics and Heat one student at the beginning secured a score which was achieved only by the highest two per cent of the class at the end. In Heat and Sound over five per cent of the pupils secured pre-study scores above the post-study average score of the entire group that took the tests.

The advantages of early identification of such promising pupils are obvious, and it is gratifying to note that during the last few years the search for and special study of such pupils has been a growing concern of an increasing number of teachers of physics and other subjects. Of course, no single test can be expected to give a fully trustworthy index of even

one of the many qualities required for a productive career in physics, but any student who *before* formal instruction secures a higher score than the average student secures *after* formal instruction is at least worthy of being studied. Some of them very richly reward the teacher who vouchsafes them special attention and encouragement.

The students at the other end of the scale also merit special attention. Some of them, after taking a full course at the expense of the state or of their parents, are still in the score-range of the lowest one per cent of those who are tested at the beginning of the course. Some of these students work harder than the majority of those who make large gains and passing grades; while it is obvious that they do not deserve, or rather, that their lot will not be improved (and might be aggravated) by passing grades in *physics,* it is the opinion of a growing number of educators that such students do deserve something more constructive and helpful for their time and money than merely a flunking grade. It is equally true that society deserves more for the time and money spent on such pupils than the mere stigmatizing of them as "failures." The question of what to do for such students can be answered only by careful and long continued experimentation. An essential part of such experimentation will be a surer identification of such students, and a more adequate study of their growth along various lines of development. Growth cannot be studied without comparable measures; hence the emphasis which the committee has placed on the importance of developing *comparable* tests.

Sex Differences.—Differences between men and women groups of physics students in this program have already been set forth in Tables 9 and 10. While there are apparently real differences between the sex groups, these tables show that the differences within sex groups are much greater and much more important than group differences. The superior student, regardless of sex, should be identified, encouraged to continue in subjects for which he displays a particular flair, and given special work if such seems desirable to the department head in the light of all relevant data and circumstances. One de-

partment head has suggested that it may be a greater contribution to turn out one gifted research scholar than to turn out a hundred "pass" students each year. But there is no necessary conflict between these two types of contributions. Physics has rich cultural, as well as disciplinary and scholarly values; special care of the few gifted pupils does not mean that the less gifted pupils need to be neglected or sacrificed on the high standards which are appropriate only to gifted pupils.

CHEMISTRY, ZOOLOGY, AND BOTANY PERCENTILES

Table 12 shows abbreviated percentiles for the Chemistry, Zoology, and Botany tests, based on all returns from all colleges that used these tests and which reported results in time for inclusion in this report. As noted above, the numbers of cases are somewhat larger this year than last year. It is hoped that, with the collaboration of the recently appointed test committees of the chemistry and zoology societies, the science testing program will be greatly expanded next year and in succeeding years. The value of this program will be increased not only by increasing the number of colleges that use the tests, but by increasing the number that report their results back to the committee. Table 12 shows that the numbers of colleges reporting Chemistry, Zoology, and Botany test results are 35, 20, and 11, respectively. The corresponding numbers that actually used the tests are 78, 35, and 19, respectively. If all these colleges had reported, Table 12 would constitute more valid norms.

Scores of Secondary School Pupils on College Science Tests. —Through the cooperation of the headmasters and science teachers in four independent secondary schools, where the college science tests were given purely for experimental purposes, the committee is enabled to present some very interesting data which tend to confirm the indications of the college-secondary school comparisons of Charts I and II. The numbers of pupils in the four independent secondary schools who took the tests were as follows: Chemistry, Part C, 270; Physics: Mechanics 247, Heat 54, Sound 56, Light 57, Elec-

TABLE 12.—Percentile tables for Chemistry, Zoology, and Botany tests. Because of the small numbers of cases, the percentiles are presented in abbreviated form. The tests were given at the end of the college year to students in elementary college courses in these sciences.

	CHEMISTRY			ZOOLOGY	BOTANY	
Test.....	Part I	Part II	Part C.	Part C.	Part C.	
No. of Colleges.....	8	6	35	20	11	
No. of Cases.....	241	148	1,580	662	277	
Mean.....	172	119	124	105	109	
Sigma.....	61.9	23.4	46.5	49.4	40.5	
Percentiles						%iles
100	447	175	280	240	220	100
98	335	161	225	198	206	98
93	270	149	197	171	173	93
90	261	147	187	160	167	90
84	240	143	172	150	154	84
80	223	140	164	141	144	80
75	211	135	155	133	133	75
70	191	130	148	127	127	70
60	174	124	133	114	117	60
50	162	120	121	101	105	50
40	147	116	107	91	91	40
30	136	110	94	79	82	30
25	125	107	87	74	78	25
20	119	99	80	68	72	20
16	112	97	75	61	68	16
10	98	91	65	51	60	10
7	95	85	59	46	56	7
3	90	63	50	35	50	3
1	67	57	40	24	40	1

tricity 243, Modern Physics 10; Zoology, Part C, 11. Of these secondary school pupils, about 56 per cent were above the college average in Chemistry; 22 per cent in Mechanics, 47 per cent in Heat, 8 per cent in Light, 25 per cent in Electricity, 75 per cent in Modern Physics; and 70 per cent in Zoology, Part C.

Some of the secondary school pupils made very high scores on the college science tests. In Chemistry 7 per cent, in Mechanics and Electricity 1 per cent, and in Modern Physics and Zoology, Part C, more than 25 per cent, were in the highest 10 per cent of the college group.

While these data do not afford evidence on the comparative science achievement of secondary school pupils in general, they do indicate that some individuals who are officially recognized

as secondary school students in credit status are above, and in some cases far above the average of college student groups on tests designed specifically for college science courses. The committee hopes that the experiment in these four secondary schools may be continued on a more extended basis.

THE COMMITTEE ON EDUCATIONAL TESTING,

F. S. Beers,
Secretary;
S. P. Capen,
G. W. Frasier,
J. T. Giles,
V. A. C. Henmon,
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W. L. Spencer,
L. M. Terman,
G. A. Works,
C. S. Yoakum,
G. F. Zook,
Ex-officio.

The American Youth Commission

AT THE Annual Meeting of the American Council on Education in May, 1935, announcement was made of a grant of $500,000 from the General Education Board to pay the expenses of a commission and its staff for a study of the problems in the general education of American youth approximately twelve years of age and upward. (See EDUCATIONAL RECORD, July, 1935, pp. 253-254.)

The first meeting of the Commission was held in Washington, D. C., Monday, September 16th, at the call of Dr. George F. Zook, President of the Council. The following individuals were named as members of the Commission:

WILL W. ALEXANDER, Atlanta, Georgia

Mr. Alexander is an outstanding leader in the field of race relations. A former clergyman, he has served with conspicuous success as the Executive Director of the Commission on Interracial Cooperation, and in 1928 was awarded the Harmon national award for services to American race relations.

NEWTON D. BAKER, Cleveland, Ohio

Mr. Baker, eminent attorney, distinguished himself as Secretary of War in the cabinet of President Wilson from 1916 to 1921. He was named later by President Coolidge as a member of the Permanent Court of Arbitration, The Hague. Mr. Baker has taken an active part in the work of many national and international movements for social improvement.

RALPH BUDD, Chicago, Illinois

Mr. Budd is a leading railway executive. He has advanced through the ranks of the organization to his present post as President of the Burlington Lines.

LOTUS D. COFFMAN, Minneapolis, Minnesota

Mr. Coffman, president of the University of Minnesota, is one of the best known American educators. Now serving his third term as Chairman of the American Council on Education, he has been active in the development of many other fields of education.

DOROTHY CANFIELD FISHER, Arlington, Vermont

Mrs. Fisher, one of America's most prominent woman writers, has long been interested in the problems of education and young people. Her thought-provoking book, "Why Stop Learning?" crystallizes many of the difficulties which face the schools and the people of this country.

WILLARD E. GIVENS, Washington, D. C.

Mr. Givens, the secretary of the National Education Association of the United States, directs the activities of this influential educational organization. He formerly served as Superintendent of Schools in San Diego and Oakland, California.

HENRY I. HARRIMAN, Boston, Massachusetts

Mr. Harriman, past-president of the Chamber of Commerce of the United States, is an outstanding public utility executive. He is Chairman of the Board of the New England Power Association and other major corporations.

ROBERT M. HUTCHINS, Chicago, Illinois

Mr. Hutchins, one of the youngest and most progressive college administrators in the country, is president of the University of Chicago.

CHESTER H. ROWELL, San Francisco, California

Mr. Rowell, editor of the San Francisco Chronicle, has a wide reputation as a lecturer and writer on political science. He is a trustee of the World Peace Foundation and has served on many national commissions dealing with social problems.

WILLIAM F. RUSSELL, New York, New York

Mr. Russell is Dean of Teachers College, Columbia University. A former chairman of the American Council on Education, he is recognized as a progressive educational leader.

EDITH R. STERN, New Orleans, Louisiana

Mrs. Stern is a well known civic leader who has been keenly interested in the development of plans for the improvement of the nation's schools. Her interest in young people has given her a sympathetic appreciation of the problems confronting American youth.

JOHN W. STUDEBAKER, Washington, D. C.

Mr. Studebaker has been United States Commissioner of Education since September, 1934. Formerly Superintendent of Schools of Des Moines, Iowa, he is nationally known for the public forum, which he organized in that city.

MIRIAM VAN WATERS, Framingham, Massachusetts

Miss Van Waters, Superintendent of the State Reformatory for Women at Framingham, Massachusetts, has been a leader in the field of American social work for many years. She has been particularly concerned with problems of juvenile delinquency and consulted with the National Committee on Law Observance and Enforcement on this subject. A former president of the National Conference on Social Work, she has written "Youth in Conflict" and "Parents on Probation" among other outstanding sociological contributions.

MATTHEW WOLL, New York, New York

Mr. Woll, vice-president of the American Federation of Labor, is a noted writer and lecturer on labor and economic topics. He served on President Harding's Unemployment Conference and is a member of the National Academy of Political Science of New York.

It will be seen at once that the Council has selected a very representative group of outstanding leaders in American civic and educational life. From a group of this consequence the public may expect during the ensuing years well considered plans for meeting one of the most troublesome problems in American life.

Dr. Homer Price Rainey, President of Bucknell University, was selected as director of the staff by the Commission at its first meeting. In selecting him, the American Youth Commission has secured the services of a man who is well known as a liberal educational administrator. Dr. Rainey, who is thirty-nine years of age, has been President of Bucknell University since August, 1931. Prior to that he was President of Franklin College, and Professor of Education at the University of Oregon. At Bucknell, Dr. Rainey became nationally known for sponsoring a program of liberal education in which the arts have a prominent part. He urged for students the increase of opportunity for creative expression in literature as well as in the fine arts, and re-arranged the curriculum so that the laboratory method was applied in these fields.

At the meeting of the Commission the following letter from President Roosevelt was read:

The White House, Washington.

August 31, 1935.

MY DEAR DOCTOR ZOOK:

I am pleased to learn of the Commission of the American Council on Education which is to conduct a five-year study of the problems in the care and education of American youth. You and your Commission know of my interest in youth; you are familiar with the splendid record of the Civilian Conservation Corps; and you are yourself a member of the Advisory Council of the more recently organized National Youth Administration.

To the members of the Youth Commission of the American Council on Education please extend my best wishes together with my confident expectation that your Commission and the National Youth Administration may be mutually helpful and effective in their efforts for American youth.

Very sincerely yours,

(Signed) FRANKLIN D. ROOSEVELT.

Mr. Newton D. Baker was selected as temporary chairman of the Commission, and Miss Miriam Van Waters was named secretary. An executive committee composed of Mr. Baker, Mr. Henry I. Harriman, and Dean William F. Russell will act for the Commission between its meetings.

The responsibility of the American Youth Commission is comprehensive. It will devote itself to all those problems affecting the fortunes and development of young people. Among these matters are health, recreation, vocational adjustment, crime and a host of other considerations all of which are or should be closely related to the educational program.

The task which faces the Commission is very large. It cannot hope to complete its work at an early date. Already $300,000 has been set aside for the early projects and additional funds will be available as the Commission develops its program.

The Commission will cooperate with all governmental, educational or social agencies interested in the solution of the various phases of the youth problem, such as the National Youth Administration, the Civilian Conservation Corps, and the many state and local efforts which are now under way.

The interest and enthusiasm of the Commission indicates the possibilities of this important project. Of the work Mr. Baker said, "I doubt whether any other research or survey has been proposed in my lifetime which seems to me to have a greater field of usefulness."

The headquarters of the Youth Commission will be in the same building with the American Council on Education, 744 Jackson Place, Washington, D. C.

The Council at Work

THE EDUCATIONAL RECORD presents in this section a new editorial feature. The Council at Work will be a brief summary of the outstanding new projects in which the Council is interested, as well as progress reports on undertakings already launched. It is hoped that this survey will give to the members of the Council and those interested in its work a more intimate view of the Council's development. Individuals desiring further information regarding subjects mentioned in this section are invited to write to the offices of the American Council on Education.

AMERICAN YOUTH COMMISSION

(See page 482)

MOTION PICTURES IN EDUCATION

The Executive Committee of the Council met on June 30, 1935, in Chicago. At that time President George F. Zook announced the receipt of a grant of $12,500 from the General Education Board for certain projects relating to the use of motion pictures in education.

Under the supervision of Dr. Edgar Dale of Ohio State University, who was active in the Payne Fund Studies of the cinema, preliminary surveys are being made with regard to the preparation of an annotated bibliography of pertinent material in this field; a study of effective administrative practices in visual education; the preparation of a complete file which will contain significant information about all available educational films; a study of specifications for equipment; and the formation of a subject-matter committee in the field of physical education and health to carry out a complete cycle of activities.

FINANCIAL ADVISORY SERVICE

A grant of $10,000 was also reported from the General Education Board for the development by the American Council on Education of a Financial Advisory Service for Colleges and Universities. Mr. George E. Van Dyke, who took an important part in the work of the National Committee on Standard Reports, has been selected as Financial Assistant in charge of this new division of the Council's activities. Mr. Van Dyke will have the cooperation of various experts in the field of educational finance. Offices have been established at 744 Jackson Place, Washington, D. C.

The Financial Advisory Service will assist individual institutions in the adoption of the recommended procedures and reports developed by the National Committee on Standard Reports; in surveys of financial conditions; and by the maintenance of references and illustrations on all phases of financial administration so that advice on specific problems based on the experience of other institutions can be provided.

The new service should also be of value in developing basic principles of financial administration regarding budget making, allocation of resources, investments, accounting, cost studies, etc.

COMMITTEE OF TWENTY-ONE

For the study of the formulation of tentative standards or guiding principles of secondary education, the several regional accrediting agencies have appropriated approximately $8,000 to supplement the gift of $25,000 announced at the annual meeting of the Council.

Dr. Walter Crosby Eells, Professor of Education at Stanford University, has been named Coordinator for the Committee of Twenty-One.

The Committee has established offices at 744 Jackson Place, Washington, D. C., and Dr. Eells will supervise the development of this important study.

NATIONAL LEGISLATION

President Cloyd H. Marvin's Committee on National Legislation was particularly active during June and July. Through conferences at the White House and with Senators, Members of the House of Representatives and other influential figures, this committee was able to keep in close contact with the various legislative actions which affected education.

The Committee assisted in securing for private and public institutions exemption from certain provisions of the Social Security Bill and the McCormack Bill, which was concerned in part with taxation of gifts for educational purposes.

"THE AMERICAN STATE AND HIGHER EDUCATION"

The first publication of the Council's joint committee with the Social Science Research Council on Administrative Phases of State Educational Systems is *"The American State and Higher Education—The Legal, Political and Constitutional Relationships"* by Dr. Alexander Brody. Prepared for the Committee under the chairmanship of Dr. A. B. Meredith, the volume, a scholarly study of the history of legal decisions affecting higher education, has been most favorably received as a readable and authentic handbook. Copies are on sale by the Council: Cloth bound, $1.50; paper bound, $1.00.

"AMERICAN UNIVERSITIES AND COLLEGES"

The printing contract for the third edition of the valuable "Handbook of American Universities and Colleges" has recently been awarded to a large publishing house. The exhibits to be included in the volume have been referred to the 670 institutions of higher education on the accredited list, as well as to the major associations described in the book. Approximately 150 additional institutions will be represented in this new edition, as compared with the 1932 volume. Since the "Handbook" will be completed in March, 1936, advance orders are now being received.

THE 1935 PSYCHOLOGICAL EXAMINATION

One hundred and sixty thousand copies of the 1935 edition of the Psychological Examination for High School Seniors and College Freshmen, prepared by Professor and Mrs. Thurstone of the University of Chicago, have already been distributed by the Council. The fact that an increasing number of institutions are regularly using these tests in their admissions procedure attests to their deserved popularity.

AMERICAN ASSOCIATION OF TEACHERS COLLEGES

The accredited institutions of the American Association of Teachers Colleges were added by the Executive Committee of the Council to the roll of institutions eligible for membership in the Council, for inclusion in the list of accredited institutions prepared by the Council each year and for representation in the "Handbook."

FOURTH EDUCATIONAL CONFERENCE

The 1935 joint conference of the Cooperative Test Service and the Committee on Educational Testing of the American Council on Education, the Committee on School and College Relations of the Progressive Education Association, and the Educational Records Bureau will be held in New York City on October 31 and November 1. This conference, the fourth annual session, will consider fundamental developments in the field of education and guidance.

Among the speakers who will appear are: Dr. W. A. Jessup, Carnegie Foundation; Dr. Claude M. Fuess, Phillips Academy; Dean Virginia Gildersleeve, Barnard College; Dr. I. L. Kandel, Columbia University; Dr. Ralph Tyler, Ohio State University; Dr. Wilford Aikin, John Burroughs Day School; and Dr. Richard M. Gummere, Harvard University.

At the dinner on Friday, November 1, Dr. Rexford Guy Tugwell will address the conference. Further details can be secured from Dr. Ben Wood, 500 West 116th Street, New York City.

NATIONAL YOUTH ADMINISTRATION

The Council has cooperated with the Federal Government in the establishment of the National Youth Administration. President George F. Zook has been named a member of the Advisory Council.

PROBLEMS AND PLANS COMMITTEE

Dr. Payson Smith, Commissioner of Education of Massachusetts, has been elected to fill the vacancy on the Committee on Problems and Plans in Education.

CONFERENCES

The American Council on Education has been represented at the following conferences and meetings:

National Education Association, Denver, Colo.

National Occupational Conference, Estes Park, Colo.

Conference on Higher Education, Minneapolis, Minn.

Conference of Directors of Higher Education, Paris, France.

World Conference of Educational Associations, Oxford, England.

Institute for Education by Radio, Columbus, Ohio.

American Association for Adult Education, Milwaukee, Wis.

Progressive Education Association, Buffalo, N. Y.

Museum of Modern Art, Hollywood, Calif.

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